

## Missouri Law Review

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Volume 81  
Issue 2 *Spring 2016*

Article 7

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Spring 2016

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#### Recommended Citation

Michelle D. Layser, *Improving Tax Incentives for Wind Energy Production: The Case for a Refundable Production Tax Credit*, 81 MO. L. REV. (2016)

Available at: <https://scholarship.law.missouri.edu/mlr/vol81/iss2/7>

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# Improving Tax Incentives for Wind Energy Production: The Case for a Refundable Production Tax Credit

Michelle D. Layser\*

## I. INTRODUCTION

Despite heated discussions in the media and on Capitol Hill, one climate change debate appears to be reaching a consensus: over ninety-seven percent of climate scientists now believe the world's climate is warming as a result of human activity.<sup>1</sup> In reaching an international agreement on climate change in Paris late last year, the United Nations called climate change “an urgent and potentially irreversible threat to human societies and the planet.”<sup>2</sup> The Intergovernmental Panel on Climate Change has concluded that continued human interference with climate systems will increase the likelihood of “severe, pervasive, and irreversible impacts,” including substantial species extinction, significant risks to food security, and temperature and humidity changes that may threaten normal human activity.<sup>3</sup> In the United States, a recent White House report asserted that climate change caused by emissions of greenhouse gases – and carbon dioxide in particular – is to blame for increasingly frequent and intense heat waves in the West and downpours in the Midwest and Northeast.<sup>4</sup>

Growing concern about climate change has been used to rally support for government subsidies for renewable energy investment.<sup>5</sup> Two important

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\* Law Research Fellow, Georgetown University Law Center. The author would like to thank, in no particular order, Reuven Avi-Yonah, Art Carden, Thomas Griffith, David Hasen, Roberta Mann, Andrew Obus, Leigh Osofsky, Sloan Speck, John Steines, and members of the faculties at the University of Utah S.J. Quinney College of Law and the University of South Carolina School of Law for their comments on drafts of this Article. Any mistakes that remain are my own.

1. William R. L. Anderegg et al., *Expert Credibility in Climate Change*, 107 PROC. NAT'L ACAD. SCI. 12107, 12107 (2010).

2. *Adoption of the Paris Agreement*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (Dec. 12, 2015), <http://unfccc.int/resource/docs/2015/cop21/eng/109r01.pdf>.

3. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY 14 (2014), [http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/ar5\\_wgII\\_spm\\_en.pdf](http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/ar5_wgII_spm_en.pdf).

4. EXEC. OFFICE OF THE PRESIDENT OF THE U.S., THE COST OF DELAYING ACTION TO STEM CLIMATE CHANGE 1 (July 2014) [hereinafter COST OF DELAYING ACTION], [http://www.whitehouse.gov/sites/default/files/docs/the\\_cost\\_of\\_delaying\\_action\\_to\\_stem\\_climate\\_change.pdf](http://www.whitehouse.gov/sites/default/files/docs/the_cost_of_delaying_action_to_stem_climate_change.pdf).

5. *See, e.g.*, Barack Obama, President of the U.S., Remarks by the President in the State of the Union Address (Feb. 12, 2013), <http://www.whitehouse.gov/the-press->

tax credits have been available to help subsidize renewable energy projects: the investment tax credit<sup>6</sup> and the production tax credit.<sup>7</sup> The two credits, which are mutually exclusive, serve similar roles in the renewable energy industry and face similar challenges. This Article, however, will focus on the more controversial of the two: the production tax credit, which was recently extended by Congress.<sup>8</sup> This Article argues that the production tax credit should be amended to make the credit refundable. As explained below, a refundable version of the production tax credit would make it more effective and better able to promote market efficiency and fight climate change by eliminating the need for costly transactions currently used to monetize the credit.

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office/2013/02/12/remarks-president-state-union-address (linking goals for increased renewable energy production to broader environmental policies to slow climate change).

6. See I.R.C. § 48 (West 2016). The first of the two mutually exclusive tax incentives available to renewable energy projects – the investment tax credit – pre-dates the present understanding of climate change. The investment tax credit was first created in 1962 with the general goal of encouraging investments in productive assets. NOVOGRADAC & CO., RENEWABLE ENERGY TAX CREDIT HANDBOOK 2 (2010) (quoting S. REP. No. 87-1881 (1962) (Conf. Rep.)). The investment tax credit was amended in the mid-2000s, however, to include specific credits for taxpayers that invest in renewable energy. See Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (codified as amended at 42 U.S.C. § 15801 (2012)); Tax Relief and Health Care Act of 2006, Pub. L. No. 109-432, 120 Stat. 2911 (codified as amended at I.R.C. § 1 (2012)). In its present form, the investment tax credit is a corporate tax credit equal to thirty percent of the cost of certain eligible energy property placed in service prior to December 31, 2016. I.R.C. § 48(a). Among the types of energy property eligible for the thirty percent credit are solar energy property and qualified small wind energy property. *Id.* at § 48(a)(2)(A). “Qualified small wind energy property” means property that generates electricity using turbines with nameplate capacity of no more than 100 kilowatts. *Id.* at § 48(c)(4). Additionally, the investment tax credit was amended in response to the 2007–2008 credit crisis to permit taxpayers otherwise eligible for the production tax credit to make an irrevocable election to receive the investment tax credit in lieu of the production tax credit. See *id.* at § 48(a)(5).

7. See I.R.C. § 48. Tax credits can be understood as subsidies delivered via the tax system. Like any tax credit, the renewable energy tax credits deliver economic value to taxpayers by offsetting their tax liability. In other words, taxpayers can apply the credits against their tax bills to achieve dollar-for-dollar reductions to the amount of tax owed. This is the economic equivalent of delivering a direct subsidy to a taxpayer in the form of a check; the only difference is that instead of a check, the taxpayer receives a reduction in taxes owed. For this reason, the renewable energy tax credits can be understood as a spending program administered through the tax system.

8. See Consolidated Appropriations Act of 2016, H.R. 2029, § 301, 114th Cong. (2015). For a discussion of tax extenders bills and their impact on tax policy, see generally Victor Fleischer, *Commentary: Tax Extenders*, 67 TAX L. REV. 613 (2014).

The production tax credit was introduced as part of the Energy Policy Act of 1992,<sup>9</sup> which marked the first time that Congress “acted affirmatively to address the issue of global climate change.”<sup>10</sup> The credit provides a dollar-for-dollar tax benefit to the owners of eligible renewable energy facilities, including certain wind farms, based on the amount of electricity produced and subsequently sold to unrelated persons.<sup>11</sup> The amount of the credit available to wind projects for any taxable year is 2.3 cents per kilowatt-hour (“kWh”) of electricity generated:<sup>12</sup> the amount of energy required to power a 100-watt light bulb for ten hours.<sup>13</sup> In 2010, 246 claimants claimed a total of \$1.7 billion in production tax credits, an average of roughly \$6.9 million per claimant.<sup>14</sup> Eligible taxpayers can claim the credit during the first ten years after the renewable energy project began generating electricity.<sup>15</sup>

Like most tax credits, the production tax credit is a nonrefundable credit that delivers economic value to taxpayers solely by offsetting their tax liability.<sup>16</sup> In other words, taxpayers can apply the credits to achieve dollar-for-dollar reductions to their tax bills.<sup>17</sup> In general, these tax credits are the economic equivalent of delivering a direct subsidy to a taxpayer in the form of a check;<sup>18</sup> however, because the taxpayer receives a reduction in taxes owed

9. Energy Policy Act of 1992, Pub. L. No. 102-486, § 1212, 106 Stat. 2776 (codified as amended at I.R.C. § 45 (West 2016)).

10. PHILIP SHARP, CONG. RESEARCH SERV., S. PT. 103-91, LEGISLATIVE HISTORY OF THE ENERGY POLICY ACT OF 1992, at 4551 (1994). Concerns about climate change motivated many of the energy related provisions of the bill, including those addressing energy efficiency and renewable energy. *Id.*

11. *See* I.R.C. § 45. Prior to its expiration at the end of 2014, eligible energy facilities, which are referred to in the statute as “qualified facilities,” included certain wind energy facilities, biomass facilities and geothermal and hydropower facilities, among others. *See id.* § 45(d).

12. *See id.* § 45(b)(2); Internal Revenue Notice 2014-36 (May 27, 2014). This amount is inflation-adjusted to equal 1.5 cents per kWh in 1993 dollars.

13. *So What is a Kilowatt-Hour?*, DUKE ENERGY, <http://www.duke-energy.com/pdfs/MyHER%20What%20is%20a%20Killowatt-Hour%20Energy%20Chart.pdf> (last visited Feb. 22, 2016).

14. MOLLY F. SHERLOCK, CONG. RESEARCH SERV., R43453, THE RENEWABLE ELECTRICITY PRODUCTION TAX CREDIT: IN BRIEF 6, tbl. 3 (2014), <http://nationalaglawcenter.org/wp-content/uploads/assets/crs/R43453.pdf>.

15. § 45(a).

16. *See* SHERLOCK, *supra* note 14, at 1.

17. *Id.*

18. Victor Thuronyi, *Tax Expenditures: A Reassessment*, 1988 DUKE L.J. 1155, 1155 (1988). The production tax credit is an example of what is commonly called a “tax expenditure.” *Id.* As discussed in greater detail in Part IV.B.3 below, the concept of tax expenditures, which was originally proposed by Stanley Surrey and has since been the subject of much debate, describes provisions in the tax code that do not impose taxes, but “are actually government spending programs disguised in tax language.” *Id.*; *see* Reuven S. Avi-Yonah, *Taxation as Regulation: Carbon Tax, Health Care Tax, Bank Tax and Other Regulatory Taxes*, 1 ACCT. ECON. & L. 1, 3 (2011)

instead of a check, the “subsidy” delivered via a nonrefundable credit is limited by the amount of taxes owed. Nevertheless, because the production tax credit can be understood as a spending program administered through the tax system, this Article at times refers to the production tax credit as a subsidy for wind energy producers. The production tax credit, which is subject to periodic sunset provisions, was allowed to expire at the end of 2014.<sup>19</sup> Efforts to reinstate the credit were resisted by Republican lawmakers, who gained control of Congress in 2015, but the credit was ultimately extended along with several other expired tax provisions as part of a budget deal approved by Congress in December 2015. Given the widespread concerns about climate change – not to mention energy independence – it is safe to assume that legislators will continue to face questions about whether, and how, to encourage renewable energy production. Continued government involvement in renewable energy, whether through direct regulation or through the tax system, should be expected. Policymakers should revisit the traditional approach to incentivizing renewable energy through the production tax credit and seek ways to improve the credit.

The purpose of this Article is to further our understanding of how the production tax credit works and does not work as a tax incentive to promote investment in renewable energy and to fight climate change. For reasons to be discussed, the tax incentives traditionally available present a number of transaction costs and limitations that make them less effective than alternative incentives. Specifically, this Article looks at the way the production tax credit is employed in the context of wind farm development. Because similar tax incentives and market conditions are relevant to other renewable energy industries, such as the solar energy industry, the wind industry was chosen as a representative case study within this context.<sup>20</sup> Though the production tax

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[hereinafter Avi-Yonah, *Taxation as Regulation*] (“[T]he tax expenditure budget has been controversial from the beginning, with critics charging that it is impossible to define an objective, non-political baseline against which to measure tax expenditures.”). The concept rests, in part, on the observation that tax deductions and credits deliver an economic benefit to the taxpayer that is economically equivalent to a subsidy.

19. The production tax credit was initially allowed to expire at the end of 2013, but it was retroactively reinstated via a tax extenders bill passed in late 2014. See H.R. 5771, 113th Cong. § 155 (2014). Both the production tax credit and the investment tax credit were extended by the Consolidated Appropriations Act in December 2015 and are scheduled to gradually phase out over time. See Consolidated Appropriations Act of 2016, H.R. 2029, § 301, 114th Cong. (2015).

20. See Allison Christians, *Critical Issues in Comparative & International Taxation Case Study Research and International Tax Theory*, 55 ST. LOUIS U. L.J. 331, 351–52 (2010) (discussing representative case study methodology within tax scholarship). Note that the production tax credit has not been available to solar energy producers since 2005, but the tax equity investment transactions discussed in this Article are also used to monetize investment tax credits in the context of solar energy deals. See § 45(d)(4); *Cost of Capital: 2014 Outlook*, PROJECT FIN. NEWSWIRE (Feb. 2014) [hereinafter *2014 Cost of Capital*], <http://www.chadbourne.com/files/Publication/>

credit has been important for encouraging growth throughout the renewable energy industry, it has been especially important in the context of wind energy.<sup>21</sup>

Wind farms, which use wind turbines to convert natural wind into mechanical energy and then electricity,<sup>22</sup> have been “the fastest growing energy technology worldwide, achieving an annual growth rate of over 30%” in total installed capacity.<sup>23</sup> Wind energy capacity, which is the amount of power that could be supplied if it were possible to run all wind turbines continuously at full-load, is measured in megawatts (“MW”).<sup>24</sup> One megawatt is roughly the amount of energy produced by ten automobile engines, and one megawatt-hour is enough energy to power about 330 homes for one hour.<sup>25</sup> From 2009 to 2014, U.S. wind energy capacity grew from 25,000 MW to over 61,000 MW.<sup>26</sup> The amount of electricity generated from these turbines grew 200% during that period, an increase the American Wind Energy Association attributes to “technological innovation and operational improvements, which [have] effectively driven down the costs and allowed development to occur in lower wind speed regions.”<sup>27</sup>

Opponents to the production tax credit assert that the wind industry has matured to the point that continued subsidies are no longer justified. Executives from traditional energy companies told *Forbes* magazine: “We believe the [production tax credit] has achieved its original purpose, namely shepherding a nascent industry to maturity, and any extension will cost taxpayers and electric consumers billions simply to benefit a handful of vested interests.”<sup>28</sup> Conservative groups have opposed the renewable energy tax credits on the belief that the government should not interfere in the free market, argu-

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5731f0f7-ec72-4938-8554-5340e1589f0b/Presentation/PublicationAttachment/0c57b87e-070d-4dd1-87b4-37488821b00e/pfn0214.pdf.

21. See SHERLOCK, *supra* note 14, at Summary.

22. *Wind 101: The Basics of Wind Energy*, AM. WIND ENERGY ASS’N, <http://www.awea.org/Resources/Content.aspx?ItemNumber=900&navItemNumber=587> (last visited Feb. 22, 2016).

23. *Wind Energy*, BUREAU OF LAND MGMT., [http://www.blm.gov/wo/st/en/prog/energy/wind\\_energy.html](http://www.blm.gov/wo/st/en/prog/energy/wind_energy.html) (last visited Feb. 22, 2016).

24. *What is a Megawatt and a Megawatt-Hour?*, CLEAN ENERGY AUTHORITY, <http://www.cleanenergyauthority.com/solar-energy-resources/what-is-a-megawatt-and-a-megawatt-hour/> (last visited Feb. 22, 2016).

25. *Id.*

26. *Wind Turbine Technology Played Key Role in Wind Energy’s Record-Breaking Growth and Cost Decline*, AM. WIND ENERGY ASS’N (Mar. 14, 2014), <http://www.awea.org/MediaCenter/pressrelease.aspx?ItemNumber=6218> [hereinafter AWEA, *Wind Turbine Technology*].

27. *Id.*

28. See, e.g., Anthony J. Alexander et al., Opinion, *The PTC is No Longer Needed to Support the Wind Industry*, FORBES (Oct. 23, 2014), <http://www.forbes.com/sites/realspin/2014/10/23/the-ptc-is-no-longer-needed-to-support-the-wind-industry/>.

ing that “forcing new-energy companies to weather market forces is the best way to test their viability and strengthen the wider energy field.”<sup>29</sup>

There is truth to the view that subsidies can distort market activity; somewhat ironically, historical subsidies for fossil-fuel producers have contributed to distortions in the energy sector that now disadvantage wind energy producers and drive the need for renewable energy subsidies.<sup>30</sup> For example, the oil and gas industry has long had the benefit of tax-favored Master Limited Partnerships to help finance extraction activities.<sup>31</sup> While some economists have proposed parity for renewable energy companies,<sup>32</sup> others have advocated for ending all energy subsidies, for both traditional and renewable energy producers, based on faith in the free market and distaste for distortions caused by economic incentives.<sup>33</sup> To the extent that energy subsidies distort the market, rather than respond to and correct existing market distortions, such proposals have merit.

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29. John Tomasic, *Koch-Backed Groups Move Fast Post-Election to Head Off Wind-Power Tax Credit*, COLO. INDEP. (Nov. 10, 2014), <http://www.coloradoindependent.com/150383/koch-backed-groups-move-fast-post-election-to-head-off-wind-power-tax-credit>.

30. *Id.* See generally Uma Outka, *Environmental Law and Fossil Fuels: Barriers to Renewable Energy*, 65 VAND. L. REV. 1679 (2012) (providing a survey of historical regulations and subsidies and arguing that renewables are structurally disadvantaged due to these features).

31. Neil Auerbach, Founder and Managing Partner, Hudson Clean Energy Partners, Keynote Address at the NYU School of Law Energy Finance Symposium: The Future of Clean Energy Finance (Feb. 15, 2013).

32. See, e.g., Master Limited Partnership Parity Act, S. 795, 113th Cong. § 2 (2013).

33. See, e.g., Nicolas Loris, *The Wind Production Tax Credit and the Case for Ending All Energy Subsidies*, 23 DUKE ENVTL. L. & POL'Y F. 323, 324 (2013) (“Subsidies are bad economic policy because they misallocate resources and reward political connectedness as opposed to sound economic ideas.”). But see Melissa Powers, *Sustainable Energy Subsidies*, 43 ENVTL. L. 211, 221 (2013). Professor Powers argues that even if all economic distortions are ignored, the energy sector is not a free market:

Since the early 1900s, most states have regulated electricity utilities as natural monopolies. Under typical regulatory schemes, state Public Utility Commissions (PUCs) regulate the types of investments utilities make, the rates they charge their consumers, the presumptive revenues those utilities may earn, and the resource mix they use to obtain power. . . . In most [states that have restructured to expose utilities to some degree of competition], monopolies still provide retail power to consumers and must still choose the resource mix pursuant to least-cost or other cost-oriented mandates. Electricity end-users rarely get a choice regarding the types of power they receive. While some retail customers do have choices of power suppliers--and have at times chosen to receive renewable power--these limited situations do not convert the electricity sector into a free market.

*Id.* (footnotes omitted).

However, the distortions in the energy sector exist apart from the historical fossil-fuel subsidies. First, University of Kansas School of Law environmental law professor Uma Outka has explained that “an implicit support structure for fossil energy is written into law in a range of areas, including environmental law, and . . . statutory and regulatory concessions to fossil energy inevitably distort how the costs of bringing new energy technologies to scale are perceived.”<sup>34</sup> These historical features of the energy industry continue to present significant barriers to newer players like wind energy producers. Second, and most importantly for this Article, traditional energy producers emit pollution, a negative externality that distorts prices in the energy industry to the detriment of clean energy producers.<sup>35</sup>

The production tax credit is a subsidy intended to counter these distortions in the energy sector by making wind energy projects more profitable.<sup>36</sup> For this purpose, the production tax credit works very well. The wind energy industry is highly sensitive to the availability of subsidies like the production tax credit, and observers have collected significant data that correlates slowed growth in the wind industry with periods of political uncertainty about the future availability of the credits.<sup>37</sup> The expiration of the production tax credit at the end of 2013 was blamed for a decrease in the number of new wind projects and lost jobs related to the wind industry.<sup>38</sup> This Article does not discuss whether the production tax credit delivers a meaningful economic benefit to the wind industry.<sup>39</sup> Rather, this Article seeks to contribute to the understanding of how the production tax credit works to promote a more efficient energy market, and it proposes changes to the credit that would not only

34. Outka, *supra* note 30, at 1682.

35. See *infra* text accompanying notes 56–62.

36. Another commonly cited justification for subsidizing wind energy production is to help foster energy independence; however, the support for this justification has become weaker as domestic natural gas production has increased. See David Schizer, *Energy Tax Expenditures: Worthy Goals, Competing Priorities, and Flawed Institutional Design* 19–20 (Feb. 25, 2015) (unpublished manuscript), [http://www.law.nyu.edu/sites/default/files/upload\\_documents/David%20Schizer.pdf](http://www.law.nyu.edu/sites/default/files/upload_documents/David%20Schizer.pdf).

37. As discussed in Part III.A, because the production tax credit historically has been enacted for one- to three-year stretches and was subject to renewal at the end of each period. *Federal Production Tax Credit For Wind Energy*, AM. WIND ENERGY ASS’N, <http://www.awea.org/Advocacy/content.aspx?ItemNumber=797> (last visited July 8, 2015); see also Powers, *supra* note 33, at 222–23.

38. Lenny Bernstein, *Wind Power Supporters Push Congress to Revive Expired Tax Credit*, WASH. POST (Jan. 30, 2014), [http://www.washingtonpost.com/national/health-science/wind-power-supporters-push-congress-to-revive-expired-tax-credit/2014/01/30/5c9c86da-89e6-11e3-a5bd-844629433ba3\\_story.html](http://www.washingtonpost.com/national/health-science/wind-power-supporters-push-congress-to-revive-expired-tax-credit/2014/01/30/5c9c86da-89e6-11e3-a5bd-844629433ba3_story.html).

39. See Joseph Cullen, *Measuring the Environmental Benefits of Wind-Generated Electricity*, 5 AM. ECON. J.: ECON. POL’Y 107, 109 (2013), <http://www.u.arizona.edu/~jcullen/Documents/measuringwind.pdf> (last visited Feb. 22, 2016) (“It is uncontroversial to assert that without federal and state subsidies, investment in new wind farms over the past decade would have been negligible.”).



make the production tax credit a more effective subsidy, but would also better align the credit with broader tax policy goals.

Part II begins by exploring the theoretical justification for the production tax credit as a Pigouvian subsidy intended to incentivize behaviors that produce positive externalities. The presence and effect of negative externalities in the energy sector are well documented, as pollution is a classic example of a negative externality responsible for market failure.<sup>40</sup> The positive externalities renewable energy companies generate when they displace traditional energy, however, are more nuanced. Yet, this context is essential to understand the justifications for the production tax credit.

This Article next describes the production tax credit in practice. As has been noted by others, design features of the production tax credit have led to complex financing structures with high transaction costs.<sup>41</sup> The most common tax equity investment structure requires wind developers to partner with passive investors who are willing and able to contribute capital in exchange for tax benefits.<sup>42</sup> The pool of so-called “tax equity investors” is limited to roughly eleven to twenty cash-rich corporations outside the energy industry that include household names like Google, MetLife, Bank of America, J.P. Morgan, Wells Fargo, and Morgan Stanley.<sup>43</sup> Anti-abuse provisions in the tax code operate to keep the pool of tax equity investors small, decreasing the availability of tax equity financing to wind developers.<sup>44</sup>

Part III of the Article takes a closer look at the legal environment in which tax equity investment transactions take place and asks how legal uncertainty may further discourage new entrants to the tax equity investment market. The first major area of legal uncertainty surrounding the production tax credit stems from sunset provisions that threaten the availability of the credit.<sup>45</sup> The sunset provisions have already received significant attention in academic literature and, therefore, are addressed only briefly in this Article.<sup>46</sup> The second potential source of uncertainty, which has received considerably less attention in academic literature, dates back to a 2012 court case over

40. See *infra* note 58 and accompanying text.

41. See, e.g., Roberta F. Mann, *Smart Incentives for the Smart Grid*, 43 N.M. L. REV. 127, 141 (2013) (noting that “using tax incentives for renewable energy generally requires complex transactions” because developers often do not have enough tax liability to benefit from the incentives); Kevin M. Walsh, *Renewable Energy Financial Incentives: Focusing on Federal Tax Credits and the Section 1603 Cash Grant: Barriers to Development*, 36 ENVIRONS ENVTL. L. & POL’Y J. 207, 235 (2013).

42. See *infra* Part II.B.

43. MICHAEL MENDELSON & JOHN HARPER, §1603 TREASURY GRANT EXPIRATION: INDUSTRY INSIGHT ON FINANCING AND MARKET IMPLICATIONS 11 (2012), <http://www.nrel.gov/docs/fy12osti/53720.pdf>.

44. *Id.*

45. See *infra* Part III.A.

46. See, e.g., Powers, *supra* note 33, at 231; Walsh, *supra* note 41, at 235; Mitchell Ward, Note, *The PTC and Wind Energy: Restructuring the Production Tax Credit as a More Effective Incentive*, 11 HOUS. BUS. & TAX L.J. 455, 483–84 (2011).

rehabilitation tax credits. In *Historic Boardwalk Hall, LLC v. Commissioner*, the U.S. Court of Appeals for the Third Circuit denied a tax equity investor the benefit of rehabilitation tax credits based on a substance-over-form analysis that recast the tax equity partnership as a prohibited sale of the tax credits.<sup>47</sup>

The Internal Revenue Service (“IRS”) responded to the *Historic Boardwalk* case with agency guidance specific to rehabilitation tax credit transactions.<sup>48</sup> That guidance, which was watched closely by the renewable energy industry, differed in several respects from the safe harbor guidance on which wind energy tax equity investors have typically relied.<sup>49</sup> Though the existing tax equity investment market continues to take comfort in the wind safe harbor, the recent legal uncertainty in broader tax equity investment markets highlights the fine line between legitimate tax equity financings and abusive transactions. At least some potential investors have probably chosen to shy away from tax equity transactions in favor of more traditional deals. Thus, this Article argues that continued reliance on costly tax equity investment transactions is bad for the wind industry because it depends upon a limited pool of capital that is unlikely to grow significantly.

Here, this Article departs from existing scholarship by arguing that a subsidy that relies heavily on tax equity investment transactions reflects poor tax policy because the subsidy is poorly targeted to reach its intended recipients. For this reason and others, this Part challenges the premise of recent commentators whose proposals would have considered how the production tax credit could be redesigned to help expand the supply of tax equity investment financing.<sup>50</sup> Part IV shows that tax equity investment transactions misdirect part of the subsidy’s value away from wind projects through investment returns and advisor fees. The analysis demonstrates that tax equity investment is more costly than traditional commercial financing that would be more readily available if the production tax credit were refundable. This Part argues that a better proposal would eliminate the need for tax equity finance transactions by making the production tax credit refundable.

The discussion below shows that a refundable production tax credit would constitute a more effective, better targeted subsidy than the nonrefundable version, largely because it would eliminate the need for tax equity financing. This proposal would not only improve the efficacy of the production tax credit in practice, but it would also be consistent with broader tax policy goals such as efficiency and simplicity. Accordingly, Part V concludes that the production tax credit should be amended to make the credit refundable.

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47. *Historic Boardwalk Hall, LLC v. Comm’r*, 694 F.3d 425, 462 (3d Cir. 2012).

48. *See* Rev. Proc. 2014-12, 2014-3 I.R.B. 415.

49. *See infra* Part III.B.3.

50. *See, e.g.*, Walsh, *supra* note 41, at 236–38 (advocating for a broadened pool of tax equity investors); Ward, *supra* note 46, at 480–82.

## II. THE WIND ENERGY PRODUCTION TAX CREDIT: THEORY AND PRACTICE

### A. The Wind Energy Production Tax Credit and Positive Externalities

At the outset, the argument in favor of the production tax credit can be stated normatively in terms of the government's obligation to protect its citizens and their general welfare by promoting clean energy. Specifically, the government should act to protect the populace from the dangers presented by climate change, including harms to health, property, and the country's physical landscape. Support for clean energy tends to fall along political party lines, however, and the ethical arguments in favor of subsidizing wind energy production often result in political gridlock. Perhaps for this reason, modern tax scholarship has acknowledged that ethical arguments play a role in policy choices,<sup>51</sup> but it has generally drawn more heavily from economic theory.<sup>52</sup>

Economic theory is based on the premise that, in a perfectly efficient free market, the price of a good will equal its marginal cost. Social welfare theorists further argue that at this price, supply and demand would reflect the socially optimal level of a good, which is the amount of the good required to maximize social wellbeing.<sup>53</sup> Certain real-world problems can prevent mar-

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51. See, e.g., EDWARD D. KLEINBARD, *WE ARE BETTER THAN THIS*, at XXIII (2015) (“[This book] focuses mostly on economic claims and arguments . . . . But I do think it worthwhile to hold up our moral premises for examination from time to time”); Joseph Bankman & Thomas Griffith, *Social Welfare and the Rate Structure: A New Look at Progressive Taxation*, 75 CAL. L. REV. 1905, 1916–17 (1987) (“We focus on welfarist rather than entitlement theories, in part because we believe that such ethics, while not without problems, have more to commend them.”); Susan Pace Hamill, *An Argument for Tax Reform Based on Judeo-Christian Ethics*, 54 ALA. L. REV. 1, 1 (2002) (“This Article applies the moral principles of Judeo-Christian ethics as a basis for urging the citizens of Alabama to insist that Alabama’s elected political leaders reform Alabama’s state tax structure, a critically important step towards ensuring that Alabama’s children, especially children from low-income families, enjoy an opportunity to build a positive future.”); Ajay K. Mehrotra, “Render Unto Caesar . . .”: *Religion/Ethics, Expertise, and the Historical Underpinnings of the Modern American Tax System*, 40 LOY. U. CHI. L.J. 321, 323 (2009) (“The aim of this essay is to probe further into the religious and ethical underpinnings of our modern tax system.”).

52. See Alex Raskolnikov, *Accepting the Limits of Tax Law and Economics*, 98 CORNELL L. REV. 523, 524 (2013) (observing that “just about every tax professor in the country introduces her students to the world of tax by articulating the goals of equity, administrability, and—you guessed it—efficiency”).

53. See J. R. Hicks, *The Foundations of Welfare Economics*, 49 ECON. J. 696, 706–07 (1939). A social welfare approach to taxation seeks to maximize the welfare (or “utility”) enjoyed by individuals in society. See Bankman & Griffith, *supra* note 51, at 1916–17 (“[W]elfarist theories of distributive justice permit taxation either to finance public goods or to redistribute income, if the well-being of individuals in the society is thereby improved. . . . Another virtue of welfarist theories is their con-

kets from functioning efficiently, however. As a result, the price may not equal the marginal cost, and the quantity of the good supplied may not be the socially optimal amount.<sup>54</sup> In such instances, the market is said to be inefficient – or in a state of market failure – due to the oversupply or undersupply of a good. One problem that can lead to market failure is the existence of externalities.<sup>55</sup> Externalities describe costs, or benefits, that are not taken into account in the price of an item because consumers do not fully internalize that cost or benefit.<sup>56</sup>

The classic example of a negative externality, described by British economist Arthur C. Pigou in the 1920s, is pollution.<sup>57</sup> Pigou described a

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sistency with the Pareto principle: They view as desirable any change that makes some member of society better off without making any other member worse off.”). In the context of individual income taxation, social welfare theories have been applied to analyze tax policy issues like progressive rate structures, commodity taxation and government expenditures on goods and services. *See, e.g., id.* (applying a social welfare theory to the analysis of progressive rates structures); Herwig J. Schlunk, *Little Boxes: Can Optimal Commodity Tax Methodology Save the Debt-Equity Distinction?*, 80 TEX. L. REV. 859, 860 (2002) (applying an “optimal commodity tax methodology” that provides rules to structure commodity taxes in a way that maximizes social welfare); LOUIS KAPLOW, *THE THEORY OF TAXATION AND PUBLIC ECONOMICS* 184–87 (2008) (applying a social welfare theory to the analysis of government expenditures on goods and services).

54. *See* KAPLOW, *supra* note 54, at 184–87.

55. British economist Alfred Marshall, who referred to externalities as external economies and diseconomies, first articulated the theory of externalities in 1890. Agnar Sandmo, *The Early History of Environmental Economics* 17–18 (Norwegian Sch. of Econ., Dep’t of Econ. Discussion Paper No. 10/2014, 2014), [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2432928](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2432928). The theory was further developed in the 1920s by British economist Arthur C. Pigou. *Id.* at 19.

56. *See id.* at 19–20; *see also* Yoram Margalioth, *Tax Policy Analysis of Climate Change*, 64 TAX L. REV. 63, 63–64 (2010). Note that in this Article, references to “externalities” refer to negative externalities unless the context indicates otherwise. *See infra* Part II.A (discussing positive externalities).

57. *See* Sandmo, *supra* note 55, at 19–20. Though Pigou is well known for his contributions to the theory of externalities, he was not the first economist to observe that markets may be ill equipped to cope with environmental harms. *Id.* at 3. Economist Agnar Sandmo has traced the history of environmental economics at least as far back as Marquis de Condorcet, an eighteenth century economist who argued that it was unjust that the value of individuals’ properties be reduced by economic activities of others that harm the environment. *Id.* at 4. Nineteenth century economist John Stuart Mill argued that nature – “the earth itself, its forests and waters, and all other natural riches” – was a public good that could not be left to market forces and individual action. *Id.* at 9. Both Condorcet and Mill qualified their conclusions that policy intervention as potentially appropriate to respond to environmental harms; however, Condorcet argued that “government interference should only take place when the harm to others could be clearly and convincingly documented,” and Mill argued that “it is not a sufficient argument for government intervention that the *laissez-faire* allocation is imperfect; there must be reason to believe that government action, given its own imperfections, will actually improve the outcome.” *Id.* at 4, 9.

factory emitting smoke that harms consumers, observing that the smoke “inflicts a heavy uncharged loss on the community, in injury to buildings and vegetables, expenses for washing clothes and cleaning rooms, expenses for the provision of extra artificial lights, and in many other ways.”<sup>58</sup> In other words, pollution is a negative externality because the full cost of the pollution associated with the factory’s output is not included in the price of the goods it produces.

In theory, when traditional energy producers engage in pollution-causing activities without internalizing the social costs of pollution – the costs of which typically are passed on to purchasers – the price they charge consumers will be artificially low, and the amount paid by consumers cannot adequately compensate for the harms inflicted on society.<sup>59</sup> The artificially low price of traditional energy thus renders more appropriately priced competitors, including clean energy companies like wind farms, unable to fully compete.<sup>60</sup> This circumstance can result in an undersupply of the competing good, which in this case is wind energy.

Stated more directly, the theory of negative externalities suggests that even if all regulatory distortions in the energy industry are ignored, the price of carbon emitting traditional energy sources is artificially low and leads to an oversupply of fossil fuels and a corresponding lack of demand for alternative sources of energy.<sup>61</sup> As a result, the wind industry will be unable to fully compete with traditional energy because demand for wind energy will always be suppressed relative to traditional energy due to the role of negative externalities in the energy industry.

Existing law and policy literature in support of taxing traditional energy or subsidizing renewable energy has relied on the existence of these negative externalities as sufficient justification for policy intervention.<sup>62</sup> Most academic observers have agreed that a well-designed corrective tax on the greenhouse gas carbon dioxide, which is a negative externality associated with fossil fuels, would be a more efficient and effective policy choice for

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58. *Id.* at 19–20 (quoting ARTHUR C. PIGOU, *THE ECONOMICS OF WELFARE* 184 (1920)).

59. Outka, *supra* note 30, at 1689.

60. *Id.* at 1702–03.

61. *See id.* at 1696–97.

62. *See, e.g.*, Robert W. Hahn & Robert N. Stavins, *Incentive-Based Environmental Regulation: A New Era from an Old Idea?*, 18 *ECOLOGY L.Q.* 1, 4, 7–8 (1991) (explaining that policy intervention to improve environmental quality rely on the theory that “private firms, if left unregulated, do not choose a ‘socially efficient’ level of environmental protection (pollution emission reduction)”; Margalioth, *supra* note 56, at 63–64, 68 (calling the solution to negative externalities “obvious” and stating that “[i]ndividuals and firms need to be forced to internalize the cost; that is, face a private cost that is equal to the social cost”); Powers, *supra* note 33, 216–19 (discussing the negative externalities produced by traditional energy and concluding that “it is clear that [the external costs of fossil fuels] far exceed the externalized costs of renewable power sources”).

controlling emissions than tax subsidies.<sup>63</sup> Nevertheless, tax subsidies for renewable energy have enjoyed more political support than the carbon tax.<sup>64</sup> A subsidy like the production tax credit does not force traditional energy producers to internalize negative externalities in the same way that a carbon tax might,<sup>65</sup> but it does have a related externalities-driven purpose. The production tax credit is properly understood as a Pigouvian subsidy to correct positive externalities.

A Pigouvian subsidy on positive externalities, which is the complement of a Pigouvian tax on negative externalities,<sup>66</sup> compensates producers for externalities that confer a benefit on society that is not reflected in the price.<sup>67</sup> At first blush, it seems reasonable enough to conclude that the production tax credit is justified because an increase in clean renewable energy from wind energy generation would have a corresponding beneficial decrease in harmful carbon emissions; however, it is worth considering the fact that, absent a substitution effect, renewable energy does not actively reduce pollution.

The way that wind farms reduce greenhouse gases stands in stark contrast to more textbook examples of positive externalities. Among the most traditional examples of positive externalities are research and development activities that benefit firms other than those that invest in the activities.<sup>68</sup> A

63. Scott R. Milliman & Raymond Prince, *Firm Incentives to Promote Technological Change in Pollution Control*, 17 J. ENVTL. ECON. & MGMT. 247, 260 (1989) (noting that the finding that emission subsidies are often inferior to emission taxes with respect to promoting abatement technological change was “broadly consistent with most previous literature”); Schizer, *supra* note 36, at 22.

64. Renewable energy subsidies like the production tax credit have also faced significant political opposition, as evidenced by the production tax credit sunset provisions and its history of expired periods. *See infra* Part III.A.

65. A tax on the greenhouse gas carbon dioxide, commonly referred to as a “carbon tax,” is a textbook example of a Pigouvian tax. Jared Bernstein, *Carbon Tax or Cap-and-Trade: Which Would Work Better?*, WASH. POST (June 8, 2014), <https://www.washingtonpost.com/posteverything/wp/2015/06/08/carbon-tax-or-cap-and-trade-which-would-work-better/>. Pigouvian taxes are corrective taxes imposed on an activity that produces negative externalities. *Id.* University of San Diego Law School tax law professor Victor Fleischer explains:

The idea is that by placing a small tax, equal to marginal social cost, on each unit of an activity to be discouraged—environmental pollution is a common example—prices will rise, forcing polluters to internalize the social cost of the harmful activity. As a result, production will decrease, leading to an allocation of economic resources that reflects the true cost of the activity causing the pollution.

Victor Fleischer, *Curb Your Enthusiasm for Pigouvian Taxes* 2–3 (San Diego Legal Studies, Paper No. 14-151, 2014), <http://ssrn.com/abstract=2413066>.

66. *See* Fleischer, *supra* note 65, at 6.

67. *Id.*

68. *See* Klaus M. Schidt & Monika Schnitzer, *Public Subsidies for Open Source? Some Economic Policy Issues of the Software Market*, 16 HARV. J.L. &

more interesting example, however, is found in beer breweries located along the James River in Richmond, Virginia.<sup>69</sup> The breweries' wastewater releases carbon into the James, which helps remove dangerous nitrogen from the river, thereby improving water quality and saving the city money by reducing clean-up costs.<sup>70</sup> In recognition of this clear positive externality, the city gave the breweries a break on their utility bills.<sup>71</sup>

Wind farms differ from both the beer breweries and the classic example of research and development activities. First, wind farms are different from the beer breweries because wind farms do not reduce existing carbon levels simply by operating.<sup>72</sup> Second, unlike in the research and development context, wind farm developers do not avoid investing in new wind projects due to fear that their returns will be diminished by competitors who will benefit from their investments.<sup>73</sup> Rather, they avoid investing in new wind projects because wind farms cannot out-compete traditional energy producers, which can sell their energy at artificially low prices.<sup>74</sup>

Rather, wind farms' potential benefit to the environment – a social benefit that should be considered an uncompensated positive externality – is realized when wind energy displaces traditional energy (the “substitution effect”) and causes a corresponding offset to carbon emissions. Washington University in St. Louis economist Joseph Cullen developed an economic model to estimate the environmental contribution of wind power resulting from this

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TECH. 473, 480 (2003). Competing firms may take advantage of a new technology without incurring the costs to develop that technology. *Id.* The firm that developed the technology, therefore, is comparatively disadvantaged because, unlike its competitors, it had to assume risk and invest significant money to develop the same technology that its competitors are now enjoying for free. *Id.* As a result, firms are discouraged from investing in research and development activities because they do not enjoy the sole benefit of their investment. *Id.* at 492. In this example, technological innovation is a positive externality that leads to under-investment in research and development. *See id.* Policy interventions, including subsidies, are intended to correct this market failure by enabling firms that invest in research and development activities to earn a profit that makes research and development activities economically attractive. *Id.* at 485.

69. Michael Martz, *New Brewery to Bring Pollution-Reducing Benefits to James River*, RICHMOND TIMES-DISPATCH (Oct. 30, 2014, 6:27 AM), [http://www.newsadvance.com/work\\_it\\_lynchburg/news/new-brewery-to-bring-pollution-reducing-benefits-to-james-river/article\\_5cf58f40-601f-11e4-b0b7-0017a43b2370.html?utm\\_source=Chesapeake+Bay+News&utm\\_campaign=706aabe625-Chesapeake\\_Bay\\_News4\\_23\\_2013&utm\\_medium=email&utm\\_term=0\\_71ced15df1-706aabe625-61679817](http://www.newsadvance.com/work_it_lynchburg/news/new-brewery-to-bring-pollution-reducing-benefits-to-james-river/article_5cf58f40-601f-11e4-b0b7-0017a43b2370.html?utm_source=Chesapeake+Bay+News&utm_campaign=706aabe625-Chesapeake_Bay_News4_23_2013&utm_medium=email&utm_term=0_71ced15df1-706aabe625-61679817).

70. *Id.*

71. *Id.*

72. Jeff McMahon, *Wind Power May Not Reduce Emissions As Expected: Argonne*, FORBES (May 30, 2012, 2:07 PM), <http://www.forbes.com/sites/jeffmcmahon/2012/05/30/wind-power-may-not-reduce-carbon-emissions-argonne/#5e4458e6574c>.

73. *See id.*

74. *See supra* Part II.A.

substitution effect.<sup>75</sup> Cullen's study of a large electricity grid in Texas confirmed that wind power subsidies do result in displacement of fossil fuel energy, but it also showed that the effect of this substitution effect on mitigation of emissions varies greatly depending on the type of generator displaced.<sup>76</sup> Cullen's results, though based on a discrete case study, highlight the fact that the distribution of positive externalities across wind energy producers would be hard to assess: "When low marginal cost wind-generated electricity enters the grid, higher marginal cost fossil fuel generators will reduce their output. However, emission rates of fossil fuel generators vary greatly by generator. Thus, the quantity of emissions offset by wind power will depend crucially on which generators reduce their output."<sup>77</sup>

An efficient production tax credit would subsidize wind farm development so that the market price for wind energy would reflect its full social value, which is the private value of wind energy to consumers plus the value of offset carbon emissions.<sup>78</sup>

A production tax credit that achieves this result would be considered optimal.<sup>79</sup> In reality, however, policymakers are limited in their ability to set the production tax credit to the correct level to restore market efficiency. First, the government would have to know the correct amount of wind development that would result in the optimal amount of carbon reduction, which may be impossible, especially in light of Cullen's observations.<sup>80</sup> Second, the government would have to know the economic value of carbon reduction, which may also be impossible.<sup>81</sup>

75. Cullen, *supra* note 39, at 107.

76. *See id.*

77. *Id.* at 107–08. In Cullen's study, wind power accounted for approximately two percent of wind power production in 2005–2007, but the emissions offset by wind were significantly less than two percent due to the types of traditional energy actually displaced. *Id.* at 122.

78. *See, e.g.,* Reuven S. Avi-Yonah, *Carbon Tax, Health Care Tax, Bank Tax, and Other Regulatory Taxes*, in DAVID A. BRENNEN ET AL., *BEYOND ECONOMIC EFFICIENCY IN UNITED STATES TAX LAW* 187 (2013) ("[T]axation is not just an acceptable vehicle for regulation, but also the regulatory technique that is preferred by most commentators (even though it may be less realistic politically)."); Louis Kaplow & Stephen Shavell, *On the Superiority of Corrective Taxes to Quantity Regulation*, 4 *AM. L. & ECON. REV.* 1, 2 (2002) (arguing that the traditional consensus among economists that corrective taxes are superior to quantity regulation is still valid and stating that "corrective taxes (and modified permit schemes) possess the same basic advantage over quantity regulation . . . making possible a result in which the level of the externality is optimal (or more nearly so)").

79. *See* Kaplow & Shavell, *supra* note 78, at 2.

80. NOLAN MILLER, *NOTES ON MICROECONOMIC THEORY* 219 (2006), <https://business.illinois.edu/nmiller/documents/notes/notes8.pdf>.

81. *Carbon Taxes: Reducing Economic Growth—Achieving No Environmental Improvement*, INST. FOR ENERGY RESEARCH, <http://instituteeforenergyresearch.org/studies/carbon-tax-primer/> (last visited Feb. 22, 2016).



Even without knowing the optimal size of the subsidy, however, it is reasonable to conclude that if the full subsidy does not reach its intended recipients, then the tax will not be as effective as it would be otherwise. As the next Part shows, in practice, certain features of the production tax credit have hindered the delivery of the subsidy and led to the widespread use of transactions that drive the subsidy away from wind farms. These transactions misdirect part of the subsidy away from wind developers, resulting in a poorly targeted subsidy that is less effective than it could be if it were amended to be a refundable credit.

### *B. The Wind Energy Production Tax Credit in Practice: An Ineffective Subsidy*

#### 1. Restrictions on Wind Developers' Ability to Use the Wind Energy Production Tax Credit

The production tax credit is available to eligible wind energy companies during their first ten years of generating electricity.<sup>82</sup> This timing has a significant consequence: because the production tax credit is not available until a wind farm begins generating energy,<sup>83</sup> wind projects in the development phase cannot earn the credit because they are not yet producing energy.<sup>84</sup> Tying the subsidy amount to actual wind energy generation makes sense if the goal is to encourage greater quantities of wind energy production in order to displace traditional energy; this benefit is undermined, however, to the extent that wind projects require significant financing during the earlier development stages before the credit is available.<sup>85</sup> In fact, capital expenditures on turbines account for approximately eighty percent of development costs

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82. I.R.C. § 45(a) (West 2016). The credit was equal to 2.3 cents per kilowatt-hour (kWh) of energy produced by qualified energy resources at qualified facilities and sold to an unrelated person during the taxable year. *Id.* § 45; *Renewable Electricity Production Tax Credit*, DATABASE ST. INCENTIVES FOR RENEWABLES & EFFICIENCY (Dec. 31, 2016), <http://programs.dsireusa.org/system/program/detail/734>.

83. § 45(a).

84. PTC-eligible taxpayers can, however, elect to instead claim the investment tax credit. *See id.* § 48(a)(5)(C)(i). The investment tax credit is generally equal to thirty percent of expenditures on turbine equipment. *Id.* § 48(a)(5)(A).

85. Note that wind developers could alternatively choose to use the investment tax credit. *See sources cited supra* note 6. However, wind developers face similar barriers to use of the investment tax credit as they do with the production tax credit, including both the need to finance the project prior to receiving the subsidy and limited ability to use the credit due to lack of tax liability. *See* EUROPEAN WIND ENERGY ASS'N, 2 WIND ENERGY – THE FACTS, COSTS AND PRICES 3, [http://www.ewea.org/fileadmin/ewea\\_documents/documents/publications/WETF/Facts\\_Volume\\_2.pdf](http://www.ewea.org/fileadmin/ewea_documents/documents/publications/WETF/Facts_Volume_2.pdf) (last visited Feb. 22, 2016).

for new wind farms,<sup>86</sup> and many wind projects need subsidized financing during that stage.

Two additional features of the production tax credit significantly affect the way the credit is used in practice. First, like all tax credits, the production tax credit can only be claimed by a taxable entity, which means only corporations or individuals can use the credit.<sup>87</sup> The partnerships and limited liability companies (“LLCs”) that typically own eligible wind projects – and earn the credits – are not eligible to claim the credits at the operating company level because these forms of business organizations are pass-through entities under the existing tax system.<sup>88</sup> In addition, as discussed below, individuals are limited in their ability to use the production tax credit due to certain anti-abuse rules in the tax code.<sup>89</sup> Second, the production tax credit is not refundable, which means only taxpayers with projected tax liabilities can use the credit.<sup>90</sup> Because a credit is a dollar-for-dollar offset against taxes otherwise due, if a taxpayer has no tax liability, then the credit will have limited value to that taxpayer. Wind developers typically have no tax liability in the early years because their expenses far outpace revenues, and as a result, the credit has no immediate value to them.<sup>91</sup>

Because of these limitations, the wind industry has implemented complex financing structures designed to monetize the production tax credit to

86. *Id.*

87. Partnerships are not subject to entity-level taxation. § 701. Non-corporate domestic entities that do not elect to be treated as corporations will be treated as a partnership (if it has two or more members) or a disregarded entity (if it has a single owner), in either case not subject to federal income taxation. Treas. Reg. § 301.7701-3(a)–(b) (2015) (setting for the “check-the-box” regulations).

88. Unless it elects to be taxed as a corporation, an LLC will be taxed either as a partnership or a disregarded entity depending on the number of members. I.R.C. § 701. As a practical matter, entities rarely “check the box” to be taxed as a corporation because, unlike partnerships, corporations are subject to two levels of income tax. *See id.* § 11 (first-level tax on corporate income); *id.* § 301 (second-level tax on corporate distributions).

89. *See infra* notes 171–78 and accompanying text.

90. Tax credits are dollar-for-dollar offsets against the amount of taxes a taxpayer would otherwise owe. *Refundable vs. Non-Refundable Tax Credits*, IRS, <https://www.irs.com/articles/refundable-vs-non-refundable-tax-credits> (last visited Feb. 22, 2016). In other words, a taxpayer’s tax liability is first determined without taking credits into account, and then any available credits are applied to reduce the total amount owed. *Id.* A nonrefundable credit can reduce the taxpayer’s tax liability to zero but no further. *Id.* In contrast, a refundable tax credit (like the earned income tax credit) can reduce a taxpayer’s tax liability below zero so that the government will owe the taxpayer money in the form of a tax refund. *Id.*

91. *See* Felix Mormann, *Beyond Tax Credits: Smarter Tax Policy for A Cleaner, More Democratic Energy Future*, 31 YALE J. ON REG. 303, 308–09 (2014) (“Renewable energy projects can take ten or more years before they recover their high up-front capital expenditures and begin to generate taxable profits.”).

help fund wind developers' initial investments in wind projects.<sup>92</sup> The most straightforward of these structures is to finance the wind project through a "flip partnership." Before describing the flip partnership structure, however, it is instructive to understand the general structure of wind project financing

The simplest financing structure for new wind projects is an all-equity structure pursuant to which a wind developer contributes all needed capital.<sup>93</sup> The developer wholly owns the project without any supplemental debt financing, and all project risks and returns, including any tax benefits, inure to the developer.<sup>94</sup> This all-equity structure is most readily available to a small number of cash-rich developers with the ability to use the tax credits.<sup>95</sup>

The most prominent example of a developer that has used the all-equity structure is FPL Energy.<sup>96</sup> At the close of 2013, FPL Energy was the largest wind power company in North America and the owner of roughly seventeen percent of wind power capacity in the United States and Canada.<sup>97</sup> In contrast, smaller wind energy developers are not well positioned to use the all-equity structure, particularly if they need the production tax credit to subsidize the transaction. Historically, developers who lacked the ability to use the credits were forced to sell the project after the construction phase to a larger company with capacity to use the credits.<sup>98</sup> In the absence of advanced financing structures designed to monetize the tax credits, a Berkeley Lab report explains:

[U]p until about 2003, one of the few options available to such developers was to develop a project up to the point of construction and then sell it to a larger entity (e.g., FPL Energy) with not only access to the capital required to build the project, but also a tax base large enough to efficiently use the project's Tax Benefits.<sup>99</sup>

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92. See generally Mark Bolinger et al., *A Review of Wind Project Financing Structures in the USA*, 12 WIND ENERGY 3 (2009), <http://www.osti.gov/scitech/servlets/purl/962718>; JOHN P. HARPER ET AL., WIND PROJECT FINANCING STRUCTURES: A REVIEW & COMPARATIVE ANALYSIS 3 (Sept. 2007), <https://emp.lbl.gov/sites/all/files/REPORT%20lbnl%20-%2063434.pdf> (providing an overview of common tax equity investment structures used to monetize renewable energy tax credits).

93. *Id.*

94. *Id.* at 3.

95. *Id.* at 4.

96. *Id.* FPL Energy is now a subsidiary of NextEra Energy Resource. *Company Profile*, FLA. POWER & LIGHT CO., <https://www.fpl.com/about/company-profile.html> (last visited Mar. 6, 2016).

97. ANNUAL REPORT, NEXTERA ENERGY 4 (2013), <http://www.investor.nexteraenergy.com/phoenix.zhtml?c=88486&p=irol-reportsCorporate> (click "2013 Annual Report" to download .pdf file of the report).

98. Bolinger et al., *supra* note 92, at 2.

99. *Id.*

Over the past decade, market growth in the wind industry has demanded increasing amounts of capital to sustain growth and more elaborate financing structures have evolved to meet this need.<sup>100</sup>

To the extent that a wind developer is able to access debt financing, a wind developer may also choose to incorporate borrowing through the use of project finance structures. In the most basic project finance structure, a wind developer would form a new, wholly-owned subsidiary that directly owns the wind project.<sup>101</sup> This new subsidiary, called the “Project Company,” is a pass-through entity like a limited liability company (“LLC”), which means the Project Company is not a taxable entity.<sup>102</sup> Instead, all taxes incurred at the Project Company level, as well as tax benefits earned, pass through to its owner, the wind developer, who then reports such taxes on its own tax return.<sup>103</sup>

In order to finance the project, the wind developer would cause the Project Company to borrow a limited recourse construction loan from project finance lenders.<sup>104</sup> The project finance lenders would secure the loan by taking as collateral all the project assets – for instance, the turbines or power purchase agreements – and all future cash flow of the Project Company.<sup>105</sup> After the wind farm is built and begins operating, the construction loan will convert to a term loan, and the Project Company will begin repaying the project finance lenders.<sup>106</sup> Any profits left over after the debt payments will belong to the wind developer.<sup>107</sup>

If the size of the project finance loan is insufficient to fund development, or if the developer does not anticipate sufficient returns on the investment, then the wind project will not be built. One purpose of the production tax credit is to encourage wind farm development by responding to these challenges.<sup>108</sup> Unfortunately, however, under this financing structure, the production tax credit cannot adequately respond to either concern.

Insofar as a wind developer’s decision about whether to proceed with a new wind project turns on its ability to access sufficient debt financing, the

100. *See id.* at 6.

101. *Id.* at 3–4.

102. *Id.* at 4.

103. *Id.*

104. Traditionally, project finance loans are nonrecourse loans. SCOTT L. HOFFMAN, *THE LAW AND BUSINESS OF INTERNATIONAL PROJECT FINANCE* 322 (3d ed. 2008). A nonrecourse loan is a secured loan with respect to which the borrower has no liability beyond the value of the security granted as collateral. *See id.* The creditor bears the risk that the value of the collateral may be insufficient to cover the outstanding amount of the loan in the event of default; the creditor has no further recourse against the borrower. *See id.* In practice, purely nonrecourse project finance loans have become rare. *See id.*

105. Bolinger et al., *supra* note 92, at 31.

106. *See id.* at 18.

107. *Id.* at 21.

108. *Id.* at 2.

production tax credit does not immediately solve this problem. First, the lenders cannot take the tax credits as collateral because, as non-equity holders, the lenders are ineligible to claim the tax credits directly.<sup>109</sup> Second, the lenders' lien on the Project Company's cash flows will not reach the value of the tax credit because the credit will never generate any cash flow at that level because the Project Company is not a taxable entity.<sup>110</sup> For these reasons, the anticipated tax credits are unavailable as additional collateral to support a larger loan at the Project Company level.<sup>111</sup> The wind developer similarly cannot use anticipated cash flows from the production tax credit as collateral for loans at the developer level if the developer lacks the tax liability necessary to use the credit.<sup>112</sup> The wind developer's ability to build a new wind farm, therefore, continues to be limited by the size of the loan it is able to secure through traditional project financing, an amount that ignores the potential value of the tax credit.

The production tax credit is similarly limited, under traditional financing structures, to encourage investment by increasing the wind developer's expected rate of return on its investment.<sup>113</sup> The credits that will be earned by the Project Company after it begins generating energy are only valuable inso-

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109. See I.R.C. § 45(d)(1) (West 2016) (emphasis added) (defining "qualified facility" in the context of wind facilities as "any facility owned by the taxpayer" and placed in service by the statutory deadlines). This restriction is in contrast to treatment of anticipated cash flows from a direct subsidy, which could be granted as additional collateral. See *id.* In 2009–2011, wind developers could elect to receive a direct subsidy called a "cash grant" in lieu of the tax credits. See American Recovery and Reinvestment Tax Act of 2009, Pub. L. No. 111-5, § 1603, 123 Stat. 306, 364–66. In theory the cash flows generated by the cash grant could more readily be used as loan collateral; however, in practice many lenders were reluctant to accept the cash grant as security due to perceived risk that the government may recapture the cash grant money in the event of a foreclosure. See Keith Martin et al., *Wind Industry Gets Instruction on Cash Grants*, N. AM. WIND POWER 2 (Aug. 2009), <http://www.chadbourne.com/files/Publication/78223c3c-09ff-4198-9ade-cfe4e1ec6a09/Presentation/PublicationAttachment/04de90f1-ec83-4718-b1c5-d56aa204623c/Keith%20El%20John%20NA%20Windpower%20reprint%208%2009.pdf>.

110. The credit is similarly unlikely to produce cash flows at the wind developer level because most wind developers lack sufficient tax liability to absorb the nonrefundable credit. See Bolinger et al., *supra* note 92, at 2 ("Historically, most wind project developers have been small, single-purpose entities without a tax base of sufficient size to make efficient use of the Tax Benefits generated by a wind project.").

111. If the lenders expected that the tax credits would eventually be monetized at the wind developer level, then they may be willing to negotiate a separate agreement pursuant to which the wind developer would contribute to the Project Company cash generated by the credits; however, in most cases the wind developer will never be able to use the credits in order to monetize the value, so as a practical matter this option is unavailable.

112. See Bolinger et al., *supra* note 92, at 31.

113. See *id.* at vi.

far as the owners expect to receive economic benefit from those tax credits.<sup>114</sup> If the wind developer does not expect to be able to use the credits until a date in the distant future, then the credits may not increase its expected rate of return enough to make a particular wind project viable.<sup>115</sup> If the credits could be used to increase the amount of available project financing, then the wind developer may be able to increase its rate of return by adding additional leverage at the Project Company level; for the reasons explained above, however, the production tax credit cannot be used for this purpose.

The limitations described in this Part place meaningful restrictions on wind developers' ability to use the production tax credit and decrease its effectiveness as a subsidy to wind energy companies. As is explained in the next Part, this problem has given rise to complex, costly tax equity financing structures used to monetize the tax credits. Unfortunately, such structures are an imperfect solution because they misdirect part of the subsidy's value away from wind projects.

## 2. Monetizing the Wind Energy Production Tax Credit Through Tax Equity Investment

Due to the constraints on its use, the production tax credit does not immediately respond to the wind developer's barriers to investment. The wind developer will either forgo the wind project entirely to pursue other projects with greater expected returns, or it will limit the size of the project to a level that can be financed solely with a combination of equity and project financing. In either case, the production tax credit will fail to incentivize the development of wind projects unless wind developers are able to monetize the tax credits. To solve this problem, complex financing structures have been designed to make the production tax credit valuable to wind developers who are otherwise unable to use the tax credits. The most straightforward of these structures is the flip partnership structure.

In a flip partnership, the wind developer partners with a third party, called a "tax equity investor," that has the ability to use the production tax credit.<sup>116</sup> When this structure was first introduced, the tax equity investors were often strategic investors with knowledge of and interest in owning and operating wind projects.<sup>117</sup> This has become less common over time, and today, institutional investors without expertise in wind energy development are the more typical tax equity investors.<sup>118</sup>

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114. *Id.* at i.

115. *See* Mormann, *supra* note 91, at 308–09 (“Without current tax liability from other sources, project developers could carry forward their tax incentives for future use but the lost time value would impose a significant discount.”).

116. *See* Bolinger et al., *supra* note 92, at 7.

117. *See id.* at 5.

118. *See id.* at 7.

Institutional investors have special knowledge in tax reduction strategies and seek investments like wind projects that will allow them to offset tax liabilities attributable to other sources of income.<sup>119</sup> Practically speaking, the tax equity investor is always a cash-rich corporate entity. In fact, the market of tax equity investors has generally been limited to a group of roughly eleven to twenty investment banks and, more recently, a handful of public companies that have made tax equity investment a routine part of their tax reduction strategy.<sup>120</sup> The field of tax equity investors includes, among others: Google, MetLife, Bank of America, J.P. Morgan, Wells Fargo, and Morgan Stanley.<sup>121</sup>

Once a tax equity investor has been selected, the wind developer and the tax equity investor partner to own the Project Company.<sup>122</sup> Depending on how the transaction is structured, the tax equity investor will either contribute cash to the Project Company in exchange for a passive equity interest in the project entity, which is typically an LLC, or the investor will purchase a share of the developer's membership interests.<sup>123</sup> As discussed below, the tax equity investor will negotiate a target internal rate of return ("IRR") and will size the initial investment based on that target IRR.<sup>124</sup> The IRR is calculated by setting the initial investment as a negative value – cash outflow – and adding the present value of expected future cash flows until the number becomes positive and the required return is reached.<sup>125</sup> The relevant future cash flows may include not only the production tax credits the tax equity investor will receive, but also cash it will receive – either from operating income or from a future sale of the equity interest upon exit – its anticipated cash savings from depreciation, and interest deductions.<sup>126</sup>

The relationship between the tax equity investor and the wind developer is documented in the project company's operating agreement, which de-

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119. *See id.*

120. *See id.* at 8.

121. *See* MENDELSON & HARPER, *supra* note 43, at 11; Bolinger et al., *supra* note 92, at 7.

122. *See* Bolinger et al., *supra* note 92, at 18.

123. For a discussion of the tax consequences of choosing to structure the initial investment by the tax equity investor as a contribution to the partnership or as a purchase and sale transaction, see Dennis Mortiz, *Modeling Choices Impact Tax Equity Financing*, N. AM. WIND POWER (Mar. 2008), <http://www.advantageforanalysts.com/documents/20080301NAWModelingChoices.pdf>.

124. *See* Wales Mack & John Marciano, *Modeling Investments in Tax Equity Partnerships: Solving the Puzzle in a Post-Treasury Grant World*, BLOOMBERG BNA: DAILY TAX REP. 6–7 (Oct. 12, 2012), [http://www.chadbourne.com/files/Publication/d6450651-6af4-4285-89e9-8fca1bd319f9/Presentation/PublicationAttachment/1c1129f9-256f-4ee0-a9c9-960b10cb9ad1/ModelingInvestments\\_in\\_TaxEquityPartnerships\\_Marciano\\_BloombergReport\\_10-12.pdf](http://www.chadbourne.com/files/Publication/d6450651-6af4-4285-89e9-8fca1bd319f9/Presentation/PublicationAttachment/1c1129f9-256f-4ee0-a9c9-960b10cb9ad1/ModelingInvestments_in_TaxEquityPartnerships_Marciano_BloombergReport_10-12.pdf).

125. *Id.* at 6.

126. Keith Martin, *Calculating How Much Tax Equity Can Be Raised*, PROJECT FIN. NEWSWIRE 18–26 (June 2008), [http://www.chadbourne.com/CalculatingHowMuchTaxEquity\\_Jun08\\_project\\_finance/](http://www.chadbourne.com/CalculatingHowMuchTaxEquity_Jun08_project_finance/).

scribes the rights and obligations of the members.<sup>127</sup> Because operating agreements are not public records, tax equity investment documentation is not typically available for review by researchers.<sup>128</sup> A search of the U.S. Securities and Exchange Commission through the Edgar database yielded just one example of a wind energy tax equity investment operating agreement: J.P. Morgan's investment in the Kaheawa Wind Power I project developed by First Wind Holdings, Inc. ("First Wind") in Hawaii.<sup>129</sup>

First Wind had formed a limited liability company named UPC Hawaii Wind Partners, LLC ("UPC Hawaii"), which indirectly owned the project company, Kaheawa Wind Power, LLC.<sup>130</sup> The project company operated a 30 MW wind farm on the island of Maui in Hawaii, which had already reached commercial operation.<sup>131</sup> This wind project was called the "Kaheawa project."<sup>132</sup> The Kaheawa project was financed using a flip partnership tax equity investment structure and is, therefore, a useful example for the purpose of this Article.<sup>133</sup> The extent to which the transaction is representative in the market, however, can be assessed only based on anecdotal descriptions of typical transactions, as described by practitioners and other commentators.

In its public filings, First Wind explained its use of tax equity investment as follows:

In these transactions, we receive up-front payments, and our tax equity investors receive most of the operating cash flow and substantially all of the PTCs and taxable income or loss generated by the project until they achieve their targeted investment returns and return of capital, which we typically expect to occur in ten years. As a result, a tax equity financing substantially reduces the cash distributions from the applicable project available to us for other uses. Also, the period during which the tax equity investors receive most of the cash distributions from electricity sales and re-

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127. *Id.*

128. See Angela Schneeman, *THE LAW OF CORPORATIONS AND OTHER BUSINESS ORGANIZATIONS* 233 (6th ed. 2012).

129. UPC Haw. Wind Partners II, LLC, Amended & Restated Limited Liability Company Agreement (Aug. 16, 2007) [hereinafter *UPC Haw. LLC Agreement*], [http://www.sec.gov/Archives/edgar/data/1434804/000104746910008574/a2200305zex-10\\_28.htm](http://www.sec.gov/Archives/edgar/data/1434804/000104746910008574/a2200305zex-10_28.htm).

130. *See id.* at 1.

131. *Id.*

132. First Wind Holdings Inc., Registration Statement (Form S-1) 2, 112 (May 14, 2010) ("[Kaheawa Wind Power I] qualified for and receives PTCs and MACRS depreciation, along with cash payments under its PPA, and is currently financed with a tax equity investment from JP Morgan.") [hereinafter *First Wind Holdings Registration*], <http://www.sec.gov/Archives/edgar/data/1434804/000104746910005272/a2195887zs-1a.htm>.

133. *UPC Haw. LLC Agreement* at 34.



lated hedging activities may last longer than expected if our wind energy projects perform below our expectations.<sup>134</sup>

To consummate the tax equity investment transaction, First Wind caused UPC Hawaii to divide the membership interests of UPC Hawaii Wind Partners II (“the Company”) into Class A and Class B membership interests and sold all of the Class B membership interests to J.P. Morgan.<sup>135</sup> The Company directly owned the project company.<sup>136</sup> A tax equity investment transaction may follow this model, in which a developer and tax equity investor become co-owners of an entity that owns a project company, or the parties could partner to own the project company directly.

Like most tax equity investment transactions, the Class B membership interests purchased by J.P. Morgan were primarily passive membership interests that gave J.P. Morgan little control over the operations of the project company.<sup>137</sup> The management of the Company was governed by a separate Management Services Agreement (“MSA”) between UPC Hawaii and an affiliate (“the Manager”), which was incorporated by reference in the tax equity investment operating agreement.<sup>138</sup> The performance of the Manager under the MSA was to be supervised by the managing member of the Company, which under the operating agreement, was UPC Hawaii.<sup>139</sup>

Further, under the operating agreement, no member other than the managing member had “any right, power or authority to take part in the management or control of the business of, or transact any business for, the Company, to sign for or on behalf of the Company or to bind the Company in any way.”<sup>140</sup> J.P. Morgan, as the Class B member, further agreed not to exercise any authority otherwise available to it under the Delaware Limited Liability Company Act to bind or commit the Company to agreements or transactions, or to hold itself out as an agent of the Company.<sup>141</sup>

Finally, the day-to-day operations and management of the project company itself were governed by two operation and maintenance agreements between the project company and General Electric International, Inc. and UPC Wind O&M, LLC – another affiliate of the developer – respectively.<sup>142</sup> J.P. Morgan’s membership interest did carry voting rights, particularly with respect to certain “major decisions,” such as sales of the Company; however, as a practical matter, its membership interest conferred very little ability to

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134. First Wind Holdings Registration, *supra* note 132, at 4.

135. UPC Haw. LLC Agreement, *supra* note 129, at 1.

136. *Id.* at 10.

137. *See generally id.*

138. *Id.* at 25.

139. *Id.* at 26.

140. *Id.* at 6.

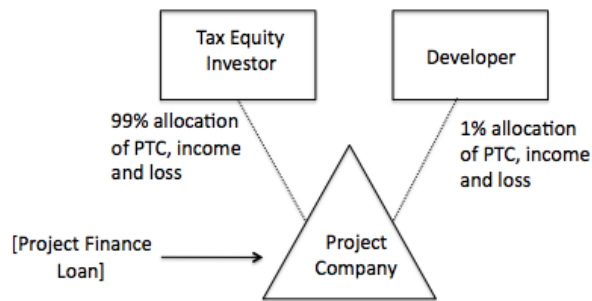
141. *Id.* at 25.

142. *See id.* at 26 (Section 8.2(b) referring to the O&M Agreement, which is defined as the agreement between the Operator and the Project Company, where the Operator is defined by reference to two separate O&M agreements).

control or manage the day-to-day activities of either the Company or the wind project owned by the Company. J.P. Morgan's passive interest in the wind project is typical of tax equity investments.

In the prototypical example of a tax equity investment transaction, the partnership will allocate up to ninety-nine percent of its taxable income or loss and ninety-nine percent of the production tax credit earned by the project company to the tax equity investor during the period when the project company will be eligible for the credit.<sup>143</sup> The remaining one percent of the income, loss, and credits are allocated to the wind developer.<sup>144</sup> Any cash distributions, however, are made first to the wind developer until it receives a return on its equity investment, and then to the tax equity investor.<sup>145</sup> Despite the income and loss allocation, the tax equity investor would not expect to receive much pre-tax return on its investment; almost all of the economic return on tax equity investment is attributable to the value of the tax credits.<sup>146</sup> Figure A illustrates the initial, pre-flip stage of the flip partnership.

FIGURE A



143. Memorandum from Cadwalader, Wickersham & Taft LLP to Clients & Friends, *Investment in Alternative Energy After the End of Cash Grants*, at 2 (Sept. 6, 2011), <http://www.cadwalader.com/uploads/cfmemos/4d165fda9e1fbb1ff75bd07e225c88a8.pdf> [hereinafter Cadwalader, *Investment in Alternative Energy*].

144. *Id.* The primary reason for the 99/1 percent allocations is to ensure that the deal structure remain within the IRS safe harbor set forth in Revenue Procedure 2007-65. See Rev. Proc. 2007-65, 2007-2 C.B. 967; *infra* Part III.B. These allocations may or may not be proportional to the amount of equity contributed by the parties, however. See Bolinger et al., *supra* note 92, at 7. A strategic investor may be willing to contribute nearly all the capital required to finance the project, while the wind developer contributes very little. See *id.* at 5. Institutional investors, however, will contribute much less to the project and require the wind developer to contribute a large amount of equity to the project, which it may choose to do either with or without borrowing at the wind developer level. See *id.* at 5-9.

145. Cadwalader, *Investment in Alternative Energy*, *supra* note 143, at 2.

146. Compare Martin, *supra* note 109 (explaining that, as of 2008, most investors require a pre-tax return of two percent), with Dipa Sharif et al., *The Return – and Returns – of Tax Equity for U.S. Renewable Projects*, BLOOMBERG NEW ENERGY FIN. 4 (Nov. 21, 2011), [www.bnef.com/WhitePapers/download/54](http://www.bnef.com/WhitePapers/download/54) (reporting that after-tax yields on tax equity investments grew to nine percent in 2008).

This prototypical example adheres closely to an IRS safe harbor issued on November 5, 2007.<sup>147</sup> As discussed in Part III.B.1 below, the safe harbor assures taxpayers that the IRS will not challenge tax equity investment transactions as lacking substantial economic effect as long as the parties meet certain guidelines set forth by the IRS. Among the guidelines is the requirement that the developer maintain at minimum a one percent in each material item of partnership income, gain, loss, deduction, and credit at all times during the existence of the project company.<sup>148</sup>

As explained in Part IV.A below, the ninety-nine percent/one percent restriction imposed by the safe harbor guidelines limits the amount of financing available to the wind developer by reducing the amount of anticipated future cash flow from the production tax credit. In other words, due to this restriction, one percent of the production tax credit cannot be monetized through tax equity investment. The First Wind deal, however, was completed in August 2007, prior to the issuance of the IRS safe harbor.<sup>149</sup> Under the First Wind agreement, a full 100% of all items of the Company's income and loss, gain, deductions, and credits were to be allocated to J.P. Morgan during this initial period.<sup>150</sup> In this respect, the First Wind deal is no longer representative of a typical tax equity investment transaction because it is unlikely that many parties today would risk violating the IRS safe harbor.<sup>151</sup> Nevertheless, the First Wind deal remains an interesting example of how taxpayers may behave in the absence of the IRS safe harbor: the parties structured the deal so as to monetize the entire value of the production tax credit.

Importantly, these initial allocations generally do not reflect the proportionate economic investments of the parties. A tax equity investor is unlikely to contribute ninety-nine percent of the capital needed to finance a wind project, at least in part because tax equity investors do not intend to engage in the business of operating a wind farm or intend to tie their potential rate of return to the wind farm's general success as a business.<sup>152</sup> Rather, assuming a tax equity investor expects to receive all of the tax benefits of the project company, including depreciation and interest deductions in addition to tax credits, the tax equity investor may be willing to contribute up to sixty percent of capital.<sup>153</sup> This amount is far below the ninety-nine percent interest in tax attributes tax equity investors typically claim during the early years.

Though the actual amount of production tax benefits and other cash flows generated may differ from the amount anticipated by the parties' early models, the First Wind deal demonstrates how the parties may negotiate

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147. Rev. Proc. 2007-65, 2007-45 C.B. 967.

148. *Id.* at § 4.02.

149. UPC Haw. LLC Agreement, *supra* note 129, at 1.

150. *Id.* at 14.

151. Rev. Proc. 2007-65, 2007-45 C.B. 967.

152. See Chris Groobey et al., *Project Finance Primer for Renewable Energy and Clean Tech Projects*, WILSON SONSINI GOODRICH & ROSATI (Aug. 2010), [https://www.wsgr.com/PDFSearch/ctp\\_guide.pdf](https://www.wsgr.com/PDFSearch/ctp_guide.pdf).

153. *See id.*

terms that help ensure that the tax equity investor will receive its negotiated rate of return. Rather than defining the initial period by reference to the years when the production tax credit or other tax items would be available, the operating agreement provided for the initial allocations to continue until J.P. Morgan achieved an IRR equal to or greater than a target IRR.<sup>154</sup> The parties' right to continue allocating income to the tax equity investor until the agreed after-tax IRR is achieved has been authorized by the IRS in the safe harbor guidelines described below.<sup>155</sup>

As of 2013, the after-tax return on a typical tax equity investment deals was seven to ten percent for unlevered transactions and as high as the mid-teens in deals with debt at the project company level.<sup>156</sup> This return is almost entirely due to tax savings; tax equity investors often do not expect to receive more than a two percent rate of return on a pre-tax basis.<sup>157</sup> Moreover, though tax equity investment has risks, tax equity investors generally do expect to receive their negotiated yield on their investment, and in this respect, the investment is more like debt than equity.<sup>158</sup> The debt-like character of tax equity financing is not lost on industry actors, who compare the cost of tax equity financing to financing from commercial bank debt, mezzanine debt, and project bond markets.<sup>159</sup>

After the initial period, which may be defined by reference to when the tax equity investor achieves its target IRR, the partners' interests in the Project Company will "flip."<sup>160</sup> The tax equity investor's interest in the Project Company will drop to as low as five percent, and the wind developer will often hold an option to buy out that remaining interest.<sup>161</sup> Assuming the wind developer exercises such an option, the tax equity investor will no longer have any rights in the Project Company, and all future profits will belong to the wind developer.<sup>162</sup> Figure B illustrates the post-flip stage of the flip partnership.

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154. UPC Haw. LLC Agreement, *supra* note 129, at Annex 1 (definition of "flip date").

155. Rev. Proc. 2007-65, 2007-45 C.B. 967, at § 4.05.

156. *Cost of Capital: 2013 Outlook*, PROJECT FIN. NEWSWIRE 2 (Feb. 2013) [hereinafter 2013 *Cost of Capital*], [http://www.chadbourne.com/files/upload/OpportunityToBuyWindFarms\\_Kaufman\\_pfn\\_feb13.pdf](http://www.chadbourne.com/files/upload/OpportunityToBuyWindFarms_Kaufman_pfn_feb13.pdf).

157. Sharif et al., *supra* note 146, at 11. *See also* Martin, *supra* note 109.

158. *See* Martin, *supra* note 109.

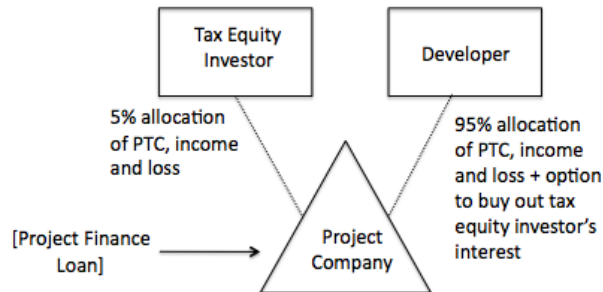
159. 2013 *Cost of Capital*, *supra* note 156.

160. Cadwalader, *Investment in Alternative Energy*, *supra* note 143, at 2.

161. *Id.*

162. *Id.*

FIGURE B



By using flip partnerships and similar structures, wind developers have been able to monetize otherwise unusable tax credits to help finance initial investments in new wind projects. The tax equity investment structure may be used either as a stand-alone financing structure, or in combination with traditional project financing or private equity contributions;<sup>163</sup> however, in the past, tax equity investors have required a premium in leveraged deals that raises their after-tax rate of return to as high as thirteen to fifteen percent.<sup>164</sup> JPMorgan Capital Corporation estimated that, in 2007, roughly seventy percent of the wind capacity installed in the United States was financed using tax equity from third-party investors.<sup>165</sup>

Among the clearest limitations of the tax equity investment structure is the small pool of potential investors. As mentioned, the number of active tax equity investors in the market is fewer than twenty, and in some years, has been fewer than a dozen.<sup>166</sup> Wind developers' ability to tap into tax equity financing is limited by the tax liabilities and available cash reserves of this small number of tax equity investors.<sup>167</sup> As the projected tax liability of this small group of investors drops, as it is likely to do in recession years, so too

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163. When project finance debt is added at the Project Company level, the structure may be referred to as "cash leveraged." See Bolinger et al., *supra* note 92, at 9–10. Wind developers may propose this structure either to increase their expected return on equity or to reduce the required amount of equity contributions. *Id.* at 9. Tax equity investors often object, however, due to their reluctance to negotiate with outside lenders. *See id.* at 10. An alternative structure that is less objectionable to lenders is the "back leveraged" structure, which incorporates debt financing at the wind developer level, where it can be arranged and negotiated without any involvement from the tax equity investor. *Id.* at 8.

164. See Update: *Discussion Among Six of the Largest Tax Equity Investors About the State of the Tax Equity Market at an Infocast Wind Finance Summit*, PROJECT FIN. NEWSWIRE (Apr. 2010), [http://www.chadbourne.com/Update\\_Tax\\_Equity\\_Market\\_projectfinance/](http://www.chadbourne.com/Update_Tax_Equity_Market_projectfinance/).

165. See RYAN WISER & MARK BOLINGER, U.S. DEP'T OF ENERGY, 2008 WIND TECHNOLOGIES MARKET REPORT 21 (July 2009), <http://www.nrel.gov/docs/fy09osti/46026.pdf>.

166. MENDELSON & HARPER, *supra* note 43, at 9–10.

167. *Id.*

does the amount of money available for tax equity financing.<sup>168</sup> As a result, the supply of tax equity financing can be restricted, and not all wind developers will have access to the tax equity finance source.

Moreover, the pool of eligible tax equity investors is further limited by features of the tax system designed to prevent abusive tax shelters. For example, passive activity loss rules limit the extent to which individual investors can use the credits.<sup>169</sup> The passive activity credit rules limit when certain taxpayers, including individuals, can apply tax credits earned from passive activities.<sup>170</sup> Generally, the sum of credits earned from passive activities are disallowed to the extent they exceed the regular tax liability of the taxpayer allocable to passive activities.<sup>171</sup> A “passive activity” is any activity that involves the conduct of a trade or business and in which the taxpayer does not materially participate.<sup>172</sup>

The IRS expressly stated in the safe harbor guidelines that the passive activity loss rules apply to tax equity investment transactions, and “only entities not subject to [the § 469 passive activity loss rules], and not individuals, will be able to offset non-project income with credits received as a passive investor in a partnership.”<sup>173</sup> In other words, tax equity investors are passive investors that do not materially participate in the wind energy trade or business; therefore, the passive activity credit rules limit the amount of the production tax credit that can be used by natural-person tax equity investors.

Though a very wealthy individual – or, more likely, a pool of such individuals – could theoretically have enough passive activity income to make a tax equity investment in a wind project possible, as a practical matter, individuals usually cannot act as tax equity investors. This limitation effectively forecloses the possibility of a private equity fund raising significant capital from individual investors for the purposes of investing in wind energy.<sup>174</sup> As a result, the only investors who have been incentivized to invest in wind projects are a small number of banks and a handful of large public companies that have been willing to partner with wind developers for the development of large wind projects.

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168. Sharif et al., *supra* note 146, at 4. In recognition of the shortage of tax equity investment money during the recession years, Congress passed a temporary law permitting eligible wind companies to elect to receive a cash grant from the government in place of the production tax credit or the investment tax credit. *See id.* *See also* Martin et al., *supra* note 109.

169. *See* I.R.C. § 469 (West 2016).

170. *See id.*

171. *See id.* § 469(d)(2).

172. “Trade or business activities” and “material participation” are defined at 26 C.F.R. § 1.469-4 (2016) and 26 C.F.R. § 1.469-5 (2016), respectively.

173. Rev. Proc. 2007-65, 2007-45 C.B. 967, at § 4.09.

174. Similarly, a private equity fund may be less able to attract tax-exempt investors for the purpose of investing in wind energy because tax exempts also lack the tax liability needed to make the tax credits valuable. *Id.*

For the reasons discussed in this Part, the supply of tax equity financing is inadequate to meet the needs of all eligible wind energy companies. Moreover, the availability of tax equity financing is probably further depressed by legal uncertainties surrounding the production tax credit discussed in the next Part. Without access to some form of tax equity financing, wind developers have a limited ability to monetize the production tax credits and fund new wind projects, even in years when the production tax credit is otherwise available. A production tax credit that relies heavily on tax equity investment structures, therefore, is less effective than one that can always deliver the subsidy directly.

### III. LEGAL UNCERTAINTY SURROUNDING WIND TAX EQUITY INVESTMENT FINANCING

#### A. *Sunset Provisions and Uncertainty About the Future of the Wind Energy Production Tax Credit*

The legal uncertainty surrounding wind energy tax equity investment financing is owed to at least two sources. The first area of uncertainty, which has been widely commented upon by academics and other observers, and will be touched on only briefly in this Part, relates to sunset provisions.<sup>175</sup> Since the production tax credit was first introduced in 1992, the credit was subject to sunset provisions that require Congressional renewal to prevent the credit from expiring.<sup>176</sup> The production tax credit was allowed to expire three times between 1999 and 2004.<sup>177</sup> More recently, the production tax credit was allowed to sunset at the end of 2014.<sup>178</sup>

Many commentators have criticized the sunset features of the production tax credit.<sup>179</sup> Lewis & Clark Law School energy law professor Melissa Powers has observed that the unstable nature of the production tax credit has negatively affected the wind industry by creating instability in the labor force and disrupting manufacturing processes and supply chains.<sup>180</sup> Another legal scholar similarly advocated for a long-term extension of the production tax credit on the basis that “[t]he PTC helps to determine the feasibility of future

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175. See Ward, *supra* note 46, at 463.

176. *Wind Energy Tax Credit Set to Expire at End of 2012*, U.S. ENERGY INFO. ADMIN. (Nov. 21, 2012), <http://www.eia.gov/todayinenergy/detail.cfm?id=8870>.

177. *Id.*

178. Sammy Roth, *Congress Extends Wind Tax Credit, But Only for 2 Weeks*, DESERT SUN (Dec. 17, 2014), <http://www.desertsun.com/story/tech/science/energy/2014/12/16/congress-wind-tax-credit-extension/20509777/>.

179. See, e.g., Powers, *supra* note 33, at 231; Walsh, *supra* note 41, at 235; Ward, *supra* note 46, at 463.

180. Powers, *supra* note 33, at 223.

wind projects; therefore, the industry's ability to rely on its availability is necessary for long-term goals of increasing production."<sup>181</sup>

Industry members have similarly attacked the sunset provisions as harmful to the wind energy industry. One nonprofit advocacy group observed that the production tax credit's "'on-again/off-again' status has resulted in a boom-bust cycle of development. In the years following expiration, installations dropped between 76 and 93 percent, with corresponding job losses."<sup>182</sup> The American Wind and Energy Association says that the uncertainty over the continued availability of the credit "caused wind installations to drop 92 percent in 2013, causing a loss of \$23 billion to our economy and nearly 30,000 well-paying jobs."<sup>183</sup>

Another observer noted that the production tax credit sunset provisions are counterproductive to any goal of promoting long-term investment in wind projects because "renewable energy projects are irreversible investments with long lead times, and therefore investors cannot easily retract their investments upon the expiration of the PTC."<sup>184</sup> In other words, because production credit tax equity investment deals depend on the wind project earning tax credits over a ten-year period, uncertainty over the availability of the credit likely discourages at least some investors from entering into these long-term deals. For this reason, the sunset provisions act to suppress the market for tax equity investors.

Notably, when Congress extended the production tax credit in December 2015, it introduced a phase-out schedule by which the credit will be phased out gradually until it sunsets completely at the end of 2020.<sup>185</sup> The phase-out approach has been supported by members of the wind industry, who say it will provide greater stability to the industry and allow it to become cost-competitive.<sup>186</sup>

181. Ward, *supra* note 46, at 487.

182. *Production Tax Credit For Renewable Energy*, UNION OF CONCERNED SCIENTISTS, [http://www.ucsusa.org/clean\\_energy/smart-energy-solutions/increase-renewables/production-tax-credit-for.html#.VXjL6EvQmgQ](http://www.ucsusa.org/clean_energy/smart-energy-solutions/increase-renewables/production-tax-credit-for.html#.VXjL6EvQmgQ) (last visited Feb. 22, 2016). *But see* Mann, *supra* note 41, at 139–40 (noting that despite the boom-bust cycle of the production tax credit, the amount of wind electricity generated increased more than sixteen-fold between the years 2000 and 2010, an increase the Department of Energy attributed to the availability of the production tax credit).

183. *Federal Production Tax Credit For Wind Energy*, AM. WIND ENERGY ASS'N, <http://www.awea.org/Advocacy/content.aspx?ItemNumber=797> (last visited July 8, 2015).

184. Erin Dewey, Note, *Sundown and You Better Take Care: Why Sunset Provisions Harm the Renewable Energy Industry and Violate Tax Principles*, 52 B.C. L. REV. 1105, 1131–32 (2011).

185. Consolidated Appropriations Act of 2016, H.R. 2029, 114th Cong. § 301 (2015).

186. *Analysis: Phase-out of Wind Energy Production Tax Credit Would Enable U.S. Industry to Become Fully Cost Competitive*, AM. WIND ENERGY ASS'N (Dec. 12, 2012), <http://www.awea.org/MediaCenter/pressrelease.aspx?ItemNumber=4696>.



### B. Uncertainty About Enforcement After Historic Boardwalk

The second area of legal uncertainty – uncertainty about IRS enforcement following a 2012 U.S. Court of Appeals for the Third Circuit ruling and subsequent agency guidance – has received little attention in academic literature and will therefore be the focus here. In *Historic Boardwalk Hall, LLC v. Commissioner*, the Third Circuit applied a substance-over-form analysis to deny a tax equity investor the benefit of rehabilitation tax credits, reasoning that the parties had failed to form a real partnership but had instead engaged in a prohibited sale of the tax credits.<sup>187</sup> In reaching this conclusion, the court relied on a facts-and-circumstances test, which was first articulated in the Supreme Court’s case *Commissioner v. Culbertson*<sup>188</sup> and more recently applied by the U.S. Court of Appeals for the Second Circuit in the *TIFD III-E, Inc. v. United States*<sup>189</sup> (“*Castle Harbour*”) line of cases and the U.S. Court of Appeals for the Fourth Circuit in *Virginia Historic Tax Credit Fund 2001 LP v. Commissioner*.<sup>190</sup>

In late 2014, the IRS released its own guidance in response to *Historic Boardwalk*, creating a safe harbor for tax equity investment in rehabilitation tax credit deals.<sup>191</sup> The new IRS guidance differed in several respects from the earlier safe harbor guidance relied upon by wind energy tax equity investors. Though the scope of the new safe harbor is limited to tax equity investment in rehabilitation tax credits – and the earlier guidance continues to apply only to tax equity investment in the production tax credit by wind energy investors – the guidance drew close attention by tax practitioners and renewable energy industry observers who questioned whether it signaled a shift in the IRS’s position on tax equity investment transactions.<sup>192</sup>

Though it is hard to know how *Historic Boardwalk* may have affected the tax equity investment market in wind energy, the legal uncertainty introduced by the case would not inspire many new investors to enter the tax equity market. The remainder of this Part explains the tax treatment of wind tax equity investment transactions prior to *Historic Boardwalk* and then considers how *Historic Boardwalk* and the IRS’s subsequent guidance may cast doubt on the future of tax equity transactions used to monetize the production tax credit.

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187. 694 F.3d 425, 462 (3d Cir. 2012).

188. 337 U.S. 733, 742 (1949).

189. 459 F.3d 220, 230 (2d Cir. 2006).

190. 639 F.3d 129, 136 (4th Cir. 2011).

191. Rev. Proc. 2014-12, 2014-3 I.R.B. 415.

192. See, e.g., Keith Martin & John J. Marciano, *Tax Equity Market Weighs New IRS Guidelines*, PROJECT FIN. NEWSWIRE (Feb. 2014), [http://www.chadbourne.com/TaxEquityMarketWeighs\\_projectfinance/](http://www.chadbourne.com/TaxEquityMarketWeighs_projectfinance/).

### 1. The Revenue Procedure 2007-65 Safe Harbor

Historically, the tax equity investment structures used to monetize the production tax credit have presented the issue of whether the IRS will respect the parties' attempt to allocate the credits to tax equity investors.<sup>193</sup> Under Subchapter K of the Internal Revenue Code ("IRC"), partnership income, gain, loss, deductions, and credits are determined at the partnership level, but those tax items are allocated among the partners and reported on the partners' individual tax returns.<sup>194</sup> The IRS generally respects the allocations prescribed by the partnership agreement;<sup>195</sup> however, Section 704(b) authorizes the IRS to re-determine the allocations under certain circumstances, including cases when the proposed allocations lack substantial economic effect.<sup>196</sup>

Substantial economic effect is a highly technical concept within the partnership tax code and regulations. A taxpayer can establish economic effect by meeting three regulatory requirements.<sup>197</sup> If these requirements are met and the allocation is reasonably likely to substantially affect the dollar amounts received from the partnership independent of tax consequences, then the allocation will be deemed to have substantial economic effect and no further analysis is necessary.<sup>198</sup> First, the partnership must maintain its capital accounts in compliance with the regulations.<sup>199</sup> Second, upon liquidation, distributions must be "made in accordance with the positive capital account balances."<sup>200</sup> Third, partners must be required to restore any capital account deficits upon liquidation.<sup>201</sup>

The first of these requirements, the capital account requirement, is not met by the allocations of tax credits made in tax equity investment transactions.<sup>202</sup> Under the regulations, "Allocations of tax credits and tax credit recapture are not reflected by adjustments to the partners' capital accounts. . . . Thus, such allocations cannot have economic effect under [the capital account requirement]."<sup>203</sup> For this reason, the regulations explain, tax credits and tax credit recapture must be allocated in accordance with the partners' interests in the partnership as of the time the tax credit or credit recapture arises.<sup>204</sup> Sec-

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193. See *IRS Publishes Safe Harbor for Structuring Wind Partnerships*, WILSON SONSINI GOODRICH & ROSATI (Nov. 8, 2007), [https://www.wsgr.com/WSGR/Display.aspx?SectionName=publications/PDFSearch/clientalert\\_windpartnerships.htm](https://www.wsgr.com/WSGR/Display.aspx?SectionName=publications/PDFSearch/clientalert_windpartnerships.htm) [hereinafter WSGR Alert].

194. See I.R.C. § 704(a) (West 2016).

195. *Id.* § 704(b).

196. *Id.*

197. Treas. Reg. § 1.704-1(b)(2)(ii)(b) (as amended in 2016).

198. *Id.* § 1.704-1(b)(2).

199. *Id.* § 1.704-1(b)(2)(ii)(b)(1).

200. *Id.* § 1.704-1(b)(2)(ii)(b)(2).

201. *Id.* § 1.704-1(b)(2)(ii)(b)(3).

202. See *id.* § 1.704-1(b)(2)(ii).

203. *Id.* § 1.704-1(b)(4)(ii).

204. *Id.*

tion 704(b) authorizes the IRS to re-allocate partners' distributive shares of income, gain, loss, deductions, or credits in cases when the partners' allocations would otherwise lack "substantial economic effect."<sup>205</sup>

The partners' "interests in the partnership" refers to how the partners have agreed to share the economic benefit or burden corresponding to the income, gain, loss, deduction, or credit that is allocated.<sup>206</sup> Among the factors to be considered to determine the partners' interests in the partnership are the partners' relative contributions to the partnership, their relative interest in economic profits and losses which may differ from taxable income or loss, and their relative interests in cash flow and other non-liquidating distributions.<sup>207</sup> In a tax equity transaction with allocations that are disproportionate to the parties' contributions and right to cash distributions, there is a risk that the IRS will adjust those allocations.

Prior to 2007, tax equity investors would ask tax counsel to provide "should" opinions that concluded that the allocations made under the tax equity investment structure should be respected by tax authorities.<sup>208</sup> Until 2006, tax advisors could also seek further assurance from the IRS by seeking a private letter ruling stating that the proposed allocations would be respected,<sup>209</sup> but the IRS stopped issuing private letter rulings on any partnership tax issues for partnerships claiming credits under I.R.C. § 45 in 2006.<sup>210</sup> As a result, despite the willingness of some tax advisors to issue opinions on the matter, some degree of uncertainty remained as to whether the tax equity investment structures employed by wind developers would survive an IRS challenge.

The IRS provided some comfort to the wind industry, however, with the issuance of Rev. Proc. 2007-65, which announced that the IRS would not challenge the substantial economic effect of tax equity investment structures used to monetize wind energy production tax credits as long as the taxpayers structure the transactions according to its guidelines. The safe harbor, which is specific to wind energy tax equity investment deals, "establishe[d] the requirements (the Safe Harbor) under which the [IRS] will respect the allocation of § 45 wind energy production tax credits by partnerships in accordance with § 704(b)."<sup>211</sup>

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205. I.R.C. § 704(b) (West 2016); Treas. Reg. § 1.704-1(b)(1)(i).

206. Treas. Reg. § 1.704-1(b)(3) (defining "partner's interest in the partnership").

207. *Id.*

208. WILSON SONSINI GOODRICH & ROSATI, *supra* note 193.

209. *See, e.g.*, I.R.S. Priv. Ltr. Rul. 200609002 (Nov. 2, 2005) (seeking a private letter ruling on treatment of a structure under which an investor does not expect to receive a positive cash-on-cash return on its investment, but the investor expects to achieve a positive return taking into account its allocation of § 45 credits).

210. *See* I.R.S. Notice 2006-88, 2006-42 I.R.B. 686 (Oct. 16, 2006).

211. Rev. Proc. 2007-65, 2007-45 I.R.B. 967. Among the safe harbor provisions are the requirements that the wind developer never own less than a one-percent interest in the Project Company and that the tax equity investor must own at least five

The safe harbor goes a step further, however, stating: “The [IRS] generally will closely scrutinize a Project Company as a partnership or Investors as partners if a Project Company’s partnership agreement does not satisfy each requirement of this revenue procedure.”<sup>212</sup> In other words, if a tax equity investor fails to comply with the revenue procedure, the IRS may not only exercise its authority to re-allocate the production tax credits, but it may also disregard the partnership structure entirely – the result that was later seen in *Historic Boardwalk*.

The question remains, however, as to under what circumstance the IRS may disregard a partnership on the basis of the substance-over-form doctrine in a transaction that *does* comply with the safe harbor. While it is tempting to conclude that the safe harbor forecloses the possibility, this is not necessarily the case. The safe harbor promises the IRS will not challenge compliant transactions on the basis of IRC § 704(b), but it makes no promises as to the substance-over-form doctrine. For this reason, it would be a mistake to disregard the *Historic Boardwalk* decision and related agency guidance.

## 2. *Historic Boardwalk* and Substance Over Form

*Historic Boardwalk* arose after the IRS recharacterized a tax-equity investment transaction used to monetize rehabilitation tax credits as an impermissible sale of tax credits, thereby denying the tax benefits. Like the production tax credit, the rehabilitation tax credit can only be claimed by a taxpayer who owns equity in the property generating the credit. Under the facts in *Historic Boardwalk*, the New Jersey Sports and Exposition Authority (“NJSEA”) had engaged in certain rehabilitation activities expected to generate the rehabilitation tax credit. As a state agency, NJSEA was a tax-exempt entity that was unable to use the tax credits directly.<sup>213</sup> For this reason, NJSEA entered into an agreement with a third-party investor with substantial federal income tax liability, under which the investor agreed to make capital contributions to an LLC named HBH in exchange for certain tax benefits, including the rehabilitation tax credit.<sup>214</sup>

Through the operating agreement, the tax equity investor agreed to make an initial contribution, followed by three additional contributions that were contingent upon completion of certain project-related events, including confirmation of the amount of rehabilitation costs that would qualify for the credit.<sup>215</sup> The tax equity investor was entitled to cash distributions for the following purposes: repayment of an “investor loan” it extended to the partnership; a three percent preferred return from any cash flow available after the loan

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percent of the Project Company during any period when it owns an interest in the project. *Id.*

212. *Id.*

213. *Historic Boardwalk Hall, LLC v. Comm’r*, 694 F.3d 425, 433 (3d Cir. 2012).

214. *Id.* at 437–38.

215. *Id.*

payment to offset any tax owed on income allocations; and the balance of any remaining cash after certain distributions were made to NJSEA.<sup>216</sup>

In addition, the parties entered into several option agreements and a tax benefits guaranty that protected the tax equity investor's return. First, they entered into options that could be exercised in the event of a default, under which the tax equity investor's interest would be purchased at an amount equal to the projected tax benefits and cash distributions.<sup>217</sup> Second, they entered into put and call options that set the purchase price of the tax equity investor's interest at the greater of 99.9% of the fair market value of its membership interest in HBH, or any accrued and unpaid preferred return due.<sup>218</sup> Third, the parties entered into a tax benefits guaranty that required NJSEA to compensate the tax equity investor in the event that the IRS denied its benefits.<sup>219</sup>

The IRS audited HBH's information return<sup>220</sup> for the years from 2000 to 2002, at which time it reallocated all partnership items from the tax equity investor to NJSEA.<sup>221</sup> The IRS denied the tax equity investor the partnership benefits on two grounds. First, HBH should not be recognized as a partnership because it was formed for "the express purpose of improperly passing along tax benefits" to the tax equity investor and was therefore a sham transaction.<sup>222</sup> Second, the tax equity investor's "interest in HBH was not . . . a bona fide partnership participation because PB had no meaningful stake in the success or failure of HBH."<sup>223</sup>

The tax court rejected both of the Commissioner's arguments. With respect to the IRS's first assertion, the tax court reasoned that the transaction was not a sham transaction because both NJSEA and the tax equity investor would receive a net economic benefit from the transaction, and therefore, the transaction had economic substance.<sup>224</sup> The tax court similarly rejected the IRS's second assertion that the tax equity investor was not a bona fide partner on the grounds that the tax equity investor had accepted at least some small economic risk, and the parties had diligently documented the transaction.<sup>225</sup>

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216. *Id.* at 438.

217. *Id.* at 438–39.

218. *Id.* at 441.

219. *Id.* at 441–42.

220. Although partnerships are pass-through entities that do not pay income tax, they are nevertheless required to file a Form 1065 U.S. Return of Partnership Income on which the partnership must report entity-level income to the IRS for informational purposes. See *Form 1065, U.S. Return of Partnership Income*, IRS, <http://www.irs.gov/uac/Form-1065,-U.S.-Return-of-Partnership-Income> (last visited Mar. 7, 2016).

221. *Historic Boardwalk*, 694 F.3d at 444–45.

222. *Id.* at 445.

223. *Id.*

224. *Id.* at 445–46.

225. *Id.* at 446–47.

The U.S. Court of Appeals for the Third Circuit reversed the tax court's decision, focusing on the IRS's argument that the tax equity investor was not a bona fide partner.<sup>226</sup> In reaching its conclusion, the court applied the *Culbertson* test, under which it analyzed the totality of the circumstance to determine whether they “truly reflect[ed] an intent to share in the profits or losses of an enterprise or, instead, ‘[we]re either illusory or insignificant.’”<sup>227</sup> The court's legal analysis was further supported by the Second Circuit's contention in *Castle Harbor* that “whether an interest has the prevailing character of debt or equity can be helpful in analyzing whether, for tax purposes, the interest should be deemed a bona fide equity participation.”<sup>228</sup> The focus of the debt or equity analysis was on the extent of the investor's lack of downside risk and lack of upside potential in the partnership.

Similarly, the *Historic Boardwalk* court cited the Fourth Circuit's reasoning in *Virginia Historic*, which likened the investor's risk to the type of risk assumed “by any advance purchaser who pays for an item with a promise of later delivery.”<sup>229</sup> The Fourth Circuit in *Virginia Historic* reasoned that this kind of risk differs from the “risk of the entrepreneur who puts money into a venture with the hope that it might grow in amount but with the knowledge that it may well shrink.”<sup>230</sup> This lack of entrepreneurial risk was deemed to lean against characterization of the investment as equity. Finally, the Third Circuit in *Historic Boardwalk* quoted the Fourth Circuit's statement:

We reach this conclusion mindful of the fact that it is “the policy of the Federal Government” to “assist State and local governments . . . to expand and accelerate their historic preservation programs and activities.” And we find no fault in the Tax Court's conclusion that both the Funds and the Funds' investors engaged in the challenged transactions with the partial goal of aiding Virginia's historic rehabilitation efforts. But Virginia's Historic Rehabilitation Program is not under attack here.<sup>231</sup>

Accordingly, the *Historic Boardwalk* court proceeded with its analysis of the underlying tax equity investment transaction with “awareness of the legislative policy of providing tax credits to spur private investment in historic rehabilitation projects.”<sup>232</sup>

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226. *Id.* at 448.

227. *Id.* at 449 (quoting *TIFD III-E, Inc. v. United States (Castle Harbour)*, 459 F.3d 220, 231 (2d Cir. 2006)).

228. *Id.* at 450 (quoting *Castle Harbour*, 459 F.3d at 232).

229. *Id.* at 453 (quoting *Va. Historic Tax Credit Fund 2001 LP v. Comm'r*, 639 F.3d 129, 145–46 (4th Cir. 2011)).

230. *Id.* (quoting *Va. Historic Tax Credit Fund 2001 LP*, 639 F.3d at 145–46).

231. *Id.* at 452 (citation omitted) (quoting *Va. Historic Tax Credit Fund 2001 LP*, 639 F.3d at 146 n.20).

232. *Id.*

The court first observed that the tax equity investor had “no meaningful downside risk” because, practically speaking, it was certain to recover its contribution and to receive the tax credits or their cash equivalent.<sup>233</sup> In reaching this conclusion, the court explained that the tax equity investor had assumed very little investment risk because it was not required to make an installment contribution until NJSEA had showed that the project had progressed enough to generate a sufficient amount of credits.<sup>234</sup> Second, the court found that the Tax Benefits Guaranty had eliminated any audit risk that the tax equity investor would lose its economic benefit due to IRS challenge. Additionally, the court noted that the rehabilitation project had already been fully funded before the tax equity investor had entered the deal, minimizing any project risk that the credit would not be earned due to a failure to complete any part of the project.<sup>235</sup>

Having concluded that the tax equity investor had effectively eliminated all investment risk, audit risk, and project risk, the court explained that the tax equity investor and NJSEA “in substance, did not join together in HBH’s stated business purpose—to rehabilitate and operate the East Hall. Rather, the parties’ focus from the very beginning was to effect a sale and purchase of HRTCs.”<sup>236</sup> This characterization was further bolstered by the court’s subsequent findings that the tax equity investor’s avoidance of downside risk was accompanied by “a dearth of any meaningful upside potential.”<sup>237</sup>

Finally, the court dismissed the parties’ partnership formalities and communications as form, not substance. In substance, the court concluded, the transaction with the tax equity investor had been a sale of historic rehabilitation tax credits.<sup>238</sup> The court held that “after looking at the substance” of the transaction, because the tax equity investor “lacked a meaningful stake in the success or failure of HBH, it was not a bona fide partner.”<sup>239</sup>

### 3. The IRS Response: Revenue Procedure 2014-12

After the Fourth Circuit issued its opinion in *Historic Boardwalk*, at least some members of the renewable energy community “took a momentary pause to re-evaluate current tax equity structures used in solar, wind, geo-

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233. *Id.* at 455.

234. *Id.*

235. *Id.* at 456.

236. *Id.* at 458.

237. *Id.* at 459.

238. *Id.* at 462 (quoting *TIFD III-E, Inc. v. United States (Castle Harbour)*, 459 F.3d 220 (2d Cir. 2006)) (“From the moment Sovereign approached NJSEA, the substance of any transaction with a corporate investor was calculated to be a ‘sale of . . . historic rehabilitation tax credits.’ . . . And in the end, that is what the substance turned out to be.”).

239. *Id.* at 463.

thermal, biomass, etc. deals.”<sup>240</sup> Most commentators concluded that the production tax credit deals prevalent in the wind industry, which by then almost always conformed to the IRS’s safe harbor, would continue to be respected after *Historic Boardwalk*.<sup>241</sup> Nevertheless, the renewable energy industry waited eagerly for IRS guidance following the ruling.

Such guidance came in January 2014 in the form of Rev. Proc. 2014-12, which set forth a safe harbor for tax equity investments in the rehabilitation tax credit. Rev. Proc. 2014-12 parallels the wind safe harbor in several respects. Both safe harbors require the developer to retain at least a one percent interest in partnership income, gain, loss, deductions, and credits.<sup>242</sup> Both also prohibit the tax equity investor’s interest from dropping below five percent in each such item for the taxable year when its percentage share of that item is the largest.<sup>243</sup>

On the other hand, Rev. Proc. 2014-12 departs from the wind safe harbor in several areas. The most significant of these departures is the express requirement that the tax equity investor’s partnership interest constitutes a “bona fide equity investment with a reasonably anticipated value . . . separate from any federal, state, and local tax deductions, allowances, credits, and other tax attributes to be allocated by the Partnership to the Investor.”<sup>244</sup> The revenue procedure explains that an interest is a bona fide equity interest if the “reasonably anticipated value is contingent upon the Partnership’s net income, gain, and loss, and is not substantially fixed in amount.”<sup>245</sup> The investor must not be “substantially protected” from economic losses from partnership activities, and its participation in partnership profits must not be limited to a preferred return that is in the nature of a payment for capital.<sup>246</sup>

In other words, to satisfy the safe harbor, the tax equity investor’s interest must be, in substance, equity and not debt. Not only is this a vague requirement compared to the bright-line rules that are more commonly associated with safe harbors, but it also should not be too comforting to a taxpayer hoping to use the safe harbor to ensure its investment is respected as equity

240. John Marciano, *Supremes: No Re-Consideration of Historic Boardwalk*, PROJECT FIN. NEWSWIRE (May 28, 2013), <http://www.pfnnewsire.com/2013/05/supremes-no-re-consideration-of.html>.

241. Forrest David Milder, *The Current: Historic Boardwalk Hall – What Does it Mean for Renewable Energy?*, NOVOGRADAC J. TAX CREDITS (Feb. 2011), [http://www.novoco.com/journal/2011/02/news\\_ret\\_c\\_201102.php](http://www.novoco.com/journal/2011/02/news_ret_c_201102.php) (“If properly structured, an investor can have a great level of comfort that its investment will be respected following this decision.”). Marciano, *supra* note 240 (“Most transactions are very far from the aggressive structure used in the case the Third Circuit considered.”).

242. Rev. Proc. 2007-65, 2007-45 I.R.B. 967, at § 4; Rev. Proc. 2014-12, 2014-3 I.R.B. 415, at § 4.02(2)(a).

243. Rev. Proc. 2007-65, 2007-45 I.R.B. 967, at § 4; Rev. Proc. 2014-12, 2014-3 I.R.B. 415, at § 4.02(2)(a).

244. Rev. Proc. 2014-12, 2014-3 I.R.B. 415, at § 4.02(2)(b).

245. *Id.*

246. *Id.*



and not debt. Essentially, the safe harbor requires that taxpayers remain mindful of the debt-versus-equity analyses set forth in *Historic Boardwalk*, *Castle Harbor*, and *Virginia Historic*. Failure to do so could result in the investment being recharacterized as debt, causing the partnership structure to be disregarded.

Several other requirements in Rev. Proc. 2014-12 can be understood as supporting this general “bona fide equity” requirement.<sup>247</sup> First, the parties may not reduce the value of the tax equity investor’s interest through unreasonable fee arrangements.<sup>248</sup> For example, the partners may not divert cash to the developer through unreasonably large development fees that reduce the tax equity investor’s residual interest in the partnership, significantly limiting its upside potential. To do so would again cause the interest to look more like debt than equity because equity holders should be entitled to residual income after creditors have been paid. Though the purpose behind this requirement seems clear enough, the “unreasonableness” standard once again stops short of a bright-line rule for investors to follow.

Whereas the reasonable-fees requirement as intended to ensure the tax equity investor has meaningful upside potential in the partnership, several other requirements seek to ensure that the tax equity investor assume meaningful downside risk. First, like the wind safe harbor, Rev. Proc. 2014-12 requires the tax equity investor to contribute at least twenty percent of its total expected contributions before the date when the property generating the tax credits is placed in service, at which point the credit becomes significantly more certain.<sup>249</sup> Similarly, Rev. Proc. 2014-12 mandates that at least seventy-five percent of the investor’s total capital contributions be fixed in amount before the date when the property is placed in service.<sup>250</sup> Finally, it prohibits guarantees that would make the tax equity investor economically whole in the event of an IRS challenge,<sup>251</sup> and it limits the use of options and other contractual rights that would enable the tax equity investor to sell its investment for anything other than fair market value.<sup>252</sup>

Thus, Rev. Proc. 2014-12 contains a series of requirements intended to ensure that the tax equity investor retains both meaningful upside potential and meaningful downside risk – two characteristics that are important indicators that an interest has the qualities of an equity investment and not a debt investment. Many of these requirements were already incorporated in the wind safe harbor, but some were not. Given the similarities between the transactions used to monetize the rehabilitation tax credit at issue in *Historic Boardwalk* and the transactions used to monetize the production tax credit,

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247. *Id.*

248. *Id.* at § 4.02(2)(c).

249. *Id.* at § 4.03.

250. *Id.* at § 4.04. This requirement parallels the same requirement in the wind safe harbor. See Rev. Proc. 2007-65, 2007-45 I.R.B. 967, at § 4.04.

251. Rev. Proc. 2014-12, 2014-3 I.R.B. 415, at § 4.05(a).

252. *Id.* at § 4.06.

the newer IRS guidance should not be ignored. Rather, the guidance highlights the IRS's continued attention to substance over form and the need to structure tax equity investments carefully in order to avoid the recharacterization of the transaction as an impermissible sale of tax credits.

In general, wind industry observers have taken the IRS at its word insofar as it stated in Rev. Proc. 2014-12 that it did not "intend the inclusion of any particular criterion in the Safe Harbor to be an indication either of our views of the significance of that criterion with respect to any other federal or state tax credit transactions."<sup>253</sup> Early predictions were that the new safe harbor would be unlikely to have much effect on the broader tax equity market, but that the renewable energy industry should nevertheless reflect upon the "new lines" the IRS had drawn.<sup>254</sup> Lance Markowitz, the Senior Vice President and head of leasing and asset finance for Union Bank, was quoted as saying that the *Historic Boardwalk* guidance had not affected how he was structuring tax equity investment deals, "but [he] underst[ood] that there are a few general principles behind that guidance that people will at least pause to think about when doing future deals."<sup>255</sup>

The practical impact of the *Historic Boardwalk* guidance on the preexisting wind tax equity investment market may have been small; however, the guidance reflects the thin line walked by tax equity investors between legitimate investments and abusive transactions. Because tax equity investors will almost always conform their transactions to the IRS safe harbor guidelines, there is little practical concern that the transactions will be set aside. Nevertheless, the safe harbors probably amount to little more than the IRS's concession to the fact that the production tax credit would be unable to serve its legislative purpose unless tax equity transactions are permitted.

So far, the IRS has chosen not to challenge tax equity investment transactions as long as the taxpayer satisfies the terms of its safe harbor. The large banks and corporations that participate in tax equity investment transactions have presumably achieved comfort that their transactions will continue to be respected by the IRS. It is hard to say, however, whether the complicated legal status of the transactions might discourage new entrants to the tax equity investment market. At minimum, the legal uncertainties make it all the more necessary to engage experienced advisors whose fees present a barrier to entry for smaller investors.<sup>256</sup>

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253. *Id.* at § 3. See, e.g., Keith Martin & John Marciano, *IRS Sheds Additional Light On New Tax Equity Guidelines – Rev. Proc. 2014-12, Historic Boardwalk, Section 47 Tax Credits, Partnership Flips, Inverted Leases*, CHADBOURNE & PARKE LLP (Jan. 6, 2014), <http://www.chadbourne.com/IRS-SHEDS-ADDITIONAL-LIGHT-ON-NEW-TAX-EQUITY-GUIDELINES--Rev-Proc-2014-12-Historic-Boardwalk-Section-47-Tax-Credits-Partnership-Flips-Inverted-Leases-01-06-2014>.

254. Martin & Marciano, *supra* note 253.

255. See *2014 Cost of Capital*, *supra* note 20, at 4.

256. Kristin Broughton, *Small Banks Finally Have Cost-Effective Way to Make Solar Investments*, AM. BANKER (June 5, 2015, 2:58 PM), <http://www.americanbanker.com/news/community-banking/small-banks-finally-have-cost-effective-way->

Thus, wind energy developers' continued reliance on tax equity financing is bad for the industry because it depends upon a limited pool of capital that is unlikely to grow significantly. Legal changes could minimize the barriers to tax equity investment discussed in this Part, such as an amendment to the passive activity credit rules, the elimination of sunset provisions, or a new wind safe harbor that addresses the substance-over-form issue more directly. However, the next Part demonstrates that tax equity financing is bad for wind energy for a second reason: it drives part of the subsidy away from wind developers. For this reason and others, the next Part rejects proposals to expand the availability of tax equity financings and argues that a better proposal would eliminate the need for tax equity financing by making the production tax credit refundable.

#### IV. THE CASE FOR A REFUNDABLE WIND ENERGY PRODUCTION TAX CREDIT

##### *A. The Nonrefundable Wind Energy Production Tax Credit Is a Poorly Targeted Subsidy*

Observers have generally agreed that features of the production tax credit limit the extent to which wind developers can benefit from the subsidy. To date, most of the proposals to improve the production tax credit have been aimed toward expanding the tax equity investment market by removing barriers to investment. For example, commentators have proposed that the passive activity limitations be modified to exempt passive investment in wind projects, thereby expanding the potential field of tax equity investors.<sup>257</sup> This proposal may have merit to the extent that tax equity investment structures continue to be necessary.<sup>258</sup>

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to-make-solar-investments-1074733-1.html (“Steep legal fees used to make it difficult for smaller banks to investment [sic] in renewable energy tax credits.”).

257. See, e.g., Ward, *supra* note 46, at 480–83. A proponent of this change observed that one may object to “special treatment for a particular industry” or, perhaps more importantly, that “amending the passive income rules for only for [sic] wind energy will unduly hamper the development of other [production tax credit]-eligible technologies.” *Id.* at 482. These concerns are relatively easy to address. First, such an exemption could be written to exclude the production tax credit from the definition of “passive activity credit,” thereby exempting other renewable energy projects in addition to wind. Second, the production tax credit already benefits certain industries over others, and to the extent that such treatment is already justified, so are corresponding tax law changes that support it use.

258. However, one should continue to question any credit that requires carve-outs from anti-abuse rules in order to make it effective. The monetization of the production tax credit is most commonly achieved through purely tax-motivated passive investments that may generate little economic return apart from tax savings. See *supra* note 146 and accompanying text. The extremely small field of tax equity investors includes companies like Google that have become infamous in recent years for ag-

However, the underlying goal to expand the tax equity investment market should be questioned. Investment in wind farms by tax equity investors may be consistent with congressional intent to incentivize wind energy investment, but a production tax credit that depends on such transactions reflects poor tax policy. New York University Law School tax law professor Lily Batchelder and her co-authors Fred Goldberg and Peter Orszag have set forth several guiding principles for designing an effective, efficient tax credit justified on efficiency grounds.<sup>259</sup>

The first of these principles is that a subsidy like the production tax credit, which is intended to correct for positive externalities, “should be targeted in such a way that society gets the most ‘bang for its buck.’”<sup>260</sup> The two factors that affect this analysis are responsiveness to the subsidy and elasticity.<sup>261</sup> Subsidies should be disproportionately directed at the group whose behavior generates the most positive externalities or whose behavior is most elastic with respect to the price of the activity.<sup>262</sup>

As discussed in Part II.A, the energy sector is an inefficient market due to negative externalities – pollution, especially carbon – produced by traditional energy companies. Renewable energy companies like wind energy producers are disadvantaged due to negative externalities, and unless subsidized, they are also likely to under-perform activities that produce positive

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gressive tax planning techniques. See Jesse Drucker, *Google Revenues Sheltered in No-Tax Bermuda Soar to \$10 Billion*, BLOOMBERG (Dec. 10, 2012), <http://www.bloomberg.com/news/2012-12-10/google-revenues-sheltered-in-no-tax-bermuda-soar-to-10-billion.html>. On the spectrum of tax reduction strategies, tax-motivated investments in wind projects may be among the most socially beneficial of tax shelters. Tax equity investments are not considered abusive for this reason. Nevertheless, tax equity investments come very close to the line, as evidenced by the *Historic Boardwalk* decision and guidance. See *supra* part III.B.2. That the wind industry relies so heavily on its own safe harbor suggests some discomfort about whether the transactions would otherwise be respected. See *supra* Part III.B.3. An amendment to the passive activity credit rule that exempts passive investments in wind projects from the standard anti-abuse rules may be similarly justified, but it would nevertheless reflect an unusual tax policy decision.

259. See generally Lily L. Batchelder et al., *Efficiency and Tax Incentives: The Case for Refundable Tax Credits*, 59 STAN. L. REV. 23 (2006). As discussed in Part II.A of this Article, the production tax credit is justified as a subsidy needed to correct market inefficiencies caused by externalities the energy sector. See *supra* Part II.A.

260. Batchelder, *supra* note 259, at 46.

261. *Id.*

262. *Id.* Given these principals, it would be fair to ask whether forms of renewable energy other than wind may generate more positive externalities or be more elastic with respect to price. The answer to this question would help policymakers understand how to best target the production tax credit in the presence of cost constraints. See Batchelder, *supra* note 259, at 45–46. In other words, the production tax credit would not have to benefit renewable energy technologies equally, but could rather target the renewable energy technology that results in the most carbon offset (or which responds most significantly to changes in price). The analysis required to answer this question is beyond the scope of this Article.

externalities such as carbon offsets. Corrective subsidies can reduce the inefficiencies in the energy sector by making renewable energy activities more profitable.

In fact, history has shown that wind energy producers in particular are highly responsive to the availability of tax subsidies.<sup>263</sup> In other words, wind energy producers generate significant positive externalities that help reduce the negative externalities present in the energy sector, and they are highly elastic with respect to the price of wind energy production. The production tax credit should therefore be carefully targeted to renewable energy producers – in this case, wind energy producers – over other groups.<sup>264</sup>

A production tax credit that relies on tax equity investment structures for monetization of the subsidy does not deliver as targeted a subsidy as alternatives that may deliver the subsidy without the use of tax equity investment structures. Tax equity structures drive money away from wind projects: some of the value of the subsidy is shifted to tax equity investors in the form of investment yields; some of the value is shifted to the teams of lawyers, accountants, and consultants who diligence and negotiate these transactions; and some of the value may simply be wasted if it goes unmonetized.<sup>265</sup> To the extent that tax equity investment financing shifts value away from wind projects, the subsidy delivered through the production tax credit is rendered less effective than it would be if such structures were not needed.

This is not to say, however, that the entire cost of capital in tax equity investment structures represents misdirected value. Wind developers can and should use their subsidies to pay debt service. Whenever a subsidy for wind development is delivered via tax credit, it can be assumed that many wind developers must endeavor to convert the future cash flows from the credit into present value that can be used for investments and expenses before the company is generating wind energy. Lost value, then, is only problematic insofar as the current design of the production tax credit limits wind developers' monetization options to tax equity investment structures that cost more

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263. See *supra* note 37 and accompanying text.

264. This Article does not address the larger questions about whether renewable energy technologies should be subsidized equally. See *supra* note 262. Columbia Law School tax professor Michael Graetz has noted that wind energy is most likely to displace natural gas, while geothermal-generated electricity is more likely to displace coal. See MICHAEL J. GRAETZ, *THE END OF ENERGY: THE UNMAKING OF AMERICA'S ENVIRONMENT, SECURITY, AND INDEPENDENCE* 190 (2011); see also Schizer, *supra* note 36, at 38. Since coal is responsible for more greenhouse gas emissions than natural gas, it may make sense to subsidize geothermal-energy more heavily than wind energy. See *id.* at 19 (noting that 'natural gas pollutes the air much less than coal').

265. While it might be argued that such diligence is desirable in that it allows the market to properly allocate the subsidies toward projects that are most likely to be successful, it is important to note that much of the diligence is likely to be duplicative; traditional project finance lenders, who are often still involved in financing these same wind deals, require much of the same diligence. See *supra* Part II.B.2.

than traditional, non-tax equity financing options. To the extent that wind energy developers incur extra costs due to such tax equity investment arrangements, those extra costs represent a misdirected portion of the subsidy.

To understand the cost of tax equity investment, then, it is instructive to compare the cost of tax equity investment financing to the commercial bank funding that may be available if developers were able to borrow against the value of the credit. For example, assume a developer owns a 30 MW wind farm like the one owned by UPC Hawaii. Assume further that the developer expects the wind farm to operate at twenty-percent capacity in order to earn up to \$1,208,880 in production tax credits per eligible year, or up to \$12,088,800 over the ten-year period.<sup>266</sup> Because we know the typical required rate of return on tax equity investments from 2013,<sup>267</sup> we can make a reasonable guess as to the relative cost of tax equity financing and commercial bank loans in the same year.

The cost of credit for commercial bank loans in 2013 was roughly 250 basis points over the one-year LIBOR rate, which averaged 0.683% that year.<sup>268</sup> Therefore, if the wind developer were able to borrow against the anticipated value of the credit, then the cost of credit would have been approximately 3.183% annually. Given its required 3.183% annual interest rate, a commercial bank would be willing to lend up to \$10,216,350,<sup>269</sup> which the wind developer could invest in its wind project. As the wind farm earned the expected \$1,208,880 per year in production tax credits, the wind developer could use that annual cash flow to service the loan. With this information, a simplified amortization schedule can be generated using a publicly available amortization calculator program, as depicted in Table 1 below.<sup>270</sup>

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266. In one year, a 30MW wind farm operating at full capacity could produce megawatt-hours equal to 365 days x 24 hours x 30 megawatt-hours = 262,800 megawatt-hours. If the wind farm operates at 20 percent capacity, it will produce 52,560 megawatt-hours (or 52,560,000 kilowatt-hours) of electricity during that period. *See Capacity Factor, PARTNERSHIPS FOR RENEWABLES*, <http://www.pfr.co.uk/pfr/3/Renewable-Energy/15/Wind-Power/119/Capacity-Factor/> (last visited May 14, 2016). The amount of the production tax credit generated each year would equal 2.3 cents per 52,560,000 kilowatt-hours, or \$1,208,880.00.

267. *See supra* text accompanying note 156.

268. *2013 Cost of Capital, supra* note 156.

269. \$10,216,350 is the Net Present Value of the expected cash flows, discounted at 3.183%.

270. *See Amortization Schedule Calculator, PINE GROVE*, <http://www.pinegrove.com/online-calculators/amortization-schedule.htm> (last visited Mar. 7, 2016). The author calculated these values using the following assumptions: \$10,216,350 initial loan amount; 3.1830% annual interest rate; ten payments, with the first payment occurring one year after the loan date; annual payment frequency; compounding annually.

TABLE 1:  
Amortization Schedule for Commercial Bank Loan with 3.183% Annual  
Interest Rate

Yr	Payment	Principal	Interest	Balance
0	-	-	-	\$10,216,350
1	1,208,880	883,694	325,186	9,332,657
2	1,208,880	911,822	297,058	8,420,835
3	1,208,880	940,845	268,035	7,479,990
4	1,208,880	970,792	238,088	6,509,199
5	1,208,880	1,001,692	207,188	5,507,506
6	1,208,880	1,033,576	175,304	4,473,930
7	1,208,880	1,066,475	142,405	3,407,456
8	1,208,880	1,100,421	108,459	2,307,035
9	1,208,880	1,135,447	73,433	1,171,588
10	1,208,880	1,171,588	37,292	0
	<b>\$12,088,800</b>	<b>\$10,216,350</b>	<b>\$1,872,450</b>	

Because the production tax credit cannot be used to collateralize a commercial loan, however, the wind developer must instead monetize the credit via tax equity investment financing. Unlike the fixed returns on bank loans, anticipated returns on capital investments are measured by IRR. The parties will size the initial investment to equal the present value of anticipated future cash flows, discounted at the required rate of return.

In the case of tax equity investment structures, there are usually four items that must be considered in the financial model: the tax credits the tax equity investor will receive, the cash it will receive – from both operating income and the anticipated price of a buy-out of its equity interest upon exit – and its anticipated cash savings from depreciation and interest deductions.<sup>271</sup> For the purpose of this analysis, however, only the value of the production tax credit will be considered. This allows isolation of the amount of financing solely attributable to the existence of the production tax credit subsidy so that the result can be directly compared to the commercial bank loan scenario described above.

The target IRR on tax equity investment financings in 2013 was seven to ten percent.<sup>272</sup> For the sake of this example, assume that the target after-tax IRR is ten percent. Tax equity investors almost always require at least a two percent pre-tax rate of return;<sup>273</sup> therefore, we can assume that some portion of the after-tax return is based on income other than tax attributes. If we assume: (i) the pre-tax return is two percent and (ii) the tax equity investor's tax rate is thirty-five percent, then the after-tax return on that non-tax eco-

271. See Martin, *supra* note 126.

272. 2013 *Cost of Capital*, *supra* note 156.

273. *Id.*

conomic return equals 1.3%.<sup>274</sup> The remainder of the ten percent target IRR (8.7%) must therefore be attributable solely to the production tax credit. For this reason, the amount of the investment attributable to the production tax credit in this example can be determined by discounting the future value of the production tax credit at 8.7%. This calculation is summarized in Table 2 below.<sup>275</sup>

TABLE 2:  
Tax Equity Investment with 2% Pre-Tax IRR and 10% After-Tax IRR

Yr	Tax Equity Investment	Anticipated Amount of PTC <sup>276</sup>	Discounted Value of PTC (r = .087)
0	(\$7,783,066)	-	-
1		1,196,791	1,101,004
2		1,196,791	1,012,883
3		1,196,791	931,815
4		1,196,791	857,235
5		1,196,791	788,625
6		1,196,791	725,506
7		1,196,791	667,439
8		1,196,791	614,019
9		1,196,791	564,875
10		1,196,791	519,664
		<b>\$11,967,911</b>	<b>\$7,783,066</b>

In reality, the actual size of the production tax credit earned each year may vary considerably depending on wind energy production; any creditor must, at minimum, assume some risk that the wind simply does not blow. Most tax equity investors mitigate some of this risk by naming a flip date that will not occur until the target IRR is reached. Moreover, the models used to size tax equity investments are highly complex, the domain of skilled accountants and costly tax advisors. For the purposes of a one-to-one comparison with the hypothetical traditional lender described above, however, it makes sense here to use a model that projects a steady amount of production tax credits earned over a ten-year period.

With these caveats in mind, this example illustrates that a wind developer that is reliant on tax equity investment to monetize the production tax credit is economically disadvantaged in at least two respects. First, because tax

274. The after-tax rate of return equals the pre-tax rate of return (0.02) multiplied by the portion of the yield retained after taxes, which at the 35% tax rate is 65%. In other words:  $(0.02)(0.65) = 0.13$ .

275. Calculations by author.

276. Note that under the safe harbor guidelines, the tax equity investor may only receive up to ninety-nine percent of the production tax credits. *See supra* notes 143–45 and accompanying text.



equity investment transactions are limited by the safe harbor requirement that the developer retain at least a one percent allocation of the credit, the amount available to “collateralize” the financing is limited to ninety-nine percent of the anticipated value of the credit. In the example, \$120,890 of the subsidy’s value is unavailable for use as collateral; therefore, that value will be lost unless the wind developer is able to absorb the credit directly, because it is unable to monetize that portion of the credit.<sup>277</sup>

Second, the wind developer must pay a greater cost of capital to finance its transaction using a tax equity investment arrangement as compared to financing through a commercial bank. In the example, the cost of capital in the tax equity investment transaction was \$2,312,394 higher than the cost to finance the transaction via a commercial bank loan. In other words, even before legal fees, accountant fees, and other transaction costs are considered, the tax equity financing caused a loss of value to the hypothetical wind energy developer of \$2,433,284 relative to financing through a commercial bank loan. Table 3 below summarizes the loss in value attributable to tax equity investment financing.<sup>278</sup>

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277. Note that it may be possible for the wind developer to carry forward the tax credits to years when it has sufficient tax liability to absorb the credit; however, the credit would lose value over that period due to the discount rate.

278. Calculations by author.

TABLE 3:  
Cost of Capital of Commercial Bank Loan vs. Tax Equity Investment

		(A)	(B)	(A) – (B)
		Commercial Bank Loan	Tax Equity Investment	Lost Subsidy
1	Required Yield/IRR	3.183%	2% Pre-Tax/ 10% After-Tax	
	Amount of credit available to creditor/investor			
2	Per eligible year	\$1,208,880	\$1,196,791	\$12,089
3	Over ten year period	\$12,088,800	\$11,967,910	\$120,890
4	Net Present Value of available production tax credit (3) at annual discount rate (1) over 10 year period <sup>279</sup>	\$10,216,350	\$7,783,066	
5	Cost of Capital (3) – (4)	\$1,872,450	\$4,184,844	\$2,312,394
6	Total lost subsidy over 10 year period due to tax equity financing (3) + (5)			\$2,433,284

As suggested above, the professional fees associated with tax equity investment also are significant. A director of renewable energy finance at Bank of America estimated that some of the more complex tax equity investment transactions could cost as much as \$3 million to \$4 million in professional fees to close the transaction.<sup>280</sup> A study conducted through the University of Michigan observed that for some investors, “the time and financial cost of utilizing the PTC significantly reduced the value of the tax credit to the project.”<sup>281</sup> The researchers concluded that the professional costs associated

279. The net present value =  $[\$1,208,880/1+r] + [\$1,208,880/(1+r)^2] + \dots + [\$1,208,880/(1+r)^{10}]$ , where  $r$  is the discount rate. The annual discount rate for the commercial bank loan is 0.05683, and the annual discount rate for the tax equity investment is 0.09.

280. *State of the Tax Equity Market*, PROJECT FIN. NEWSWIRE (May 2012), [http://www.chadbourne.com/StateofTaxEquityMarket\\_May12\\_Projectfinance/](http://www.chadbourne.com/StateofTaxEquityMarket_May12_Projectfinance/).

281. MICHAEL C. BARATOFF ET. AL., RENEWABLE POWER, POLICY, AND THE COST OF CAPITAL: IMPROVING CAPITAL MARKET EFFICIENCY TO SUPPORT RENEWABLE POWER GENERATION PROJECTS 38 (Apr. 2007), [http://www.erb.umich.edu/Research/Student-Research/Renewables\\_Policy\\_and\\_the\\_Cost\\_of\\_Capital.pdf](http://www.erb.umich.edu/Research/Student-Research/Renewables_Policy_and_the_Cost_of_Capital.pdf).

with tax equity investment made the transactions unattractive with respect to smaller deals.<sup>282</sup>

Given the transaction costs of tax equity investment financing, one developer estimated that the threshold deal size for tax equity investment deals was between fifty and sixty million dollars.<sup>283</sup> Assume that professional fees add a premium of about three percent to the cost of capital, as is suggested by some observers.<sup>284</sup> In the example above, the estimated transaction costs would be roughly \$822,677 on top of the \$4,184,844 cost of credit, driving still more money away from the wind project.<sup>285</sup>

As this Part has demonstrated, the costs of tax equity financing are significant relative to more traditional financing options. These extra costs reflect the part of the value of the subsidy that is shifted away from wind developers. Some of the subsidy is misdirected to tax equity investors that serve the same basic function as traditional lenders but charge a greater cost of capital. Some of the subsidy is shifted toward highly specialized lawyers, accountants, and other advisors who have expertise in tax equity investment and charge significant fees for their services.

While some misdirection of a subsidy may be tolerated if unavoidable, it is poor tax policy to design a tax credit that predictably misdirects the subsidy when an alternative design would result in a more targeted subsidy. To the extent that the value of the credits is shifted to tax equity investors and other third parties that do not produce wind energy, the credits fail to deliver the full subsidy to wind developers. Tax equity investment structures drive value away from wind farms and toward passive investors and third-party advisors; therefore, a production tax credit that relies heavily on tax equity investment structures for monetization is rendered less effective because part of the subsidy fails to reach the externality-producing recipient.

As stated above, it is probably impossible to determine the socially optimal amount of carbon or the correct size of the production tax credit that would result in sufficient wind energy production to offset pollution and restore socially optimal levels of greenhouse gases.<sup>286</sup> Nevertheless, one can deduce that whatever the optimal level, it is suboptimal to have the benefits misdirected through needlessly costly structures or to third parties. The production tax credit could be made more effective by eliminating the need for tax equity investment structures and implementing a design that more carefully targets the subsidy toward wind energy producers. Making the credit refundable could eliminate the need for tax equity investment structures and their associated transaction costs.

The nonrefundable design of the production tax credit is a significant limitation because it ensures that only taxpayers with projected tax liabilities

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282. *Id.*

283. *Id.*

284. See Mormann, *supra* note 91, at 332.

285. Calculations by author.

286. See Walsh, *supra* note 41 at 480–82.

can receive the full benefit from the subsidy.<sup>287</sup> The credit may have little immediate value to wind developers in the absence of the complex tax equity investment structures used to monetize the credit because they often have little or no tax liability in the early years. As explained below, this basic problem – and the tax equity investment structures that misdirect the subsidy – could be eliminated with a simple design change: make the production tax credit refundable.

### *B. A More Effective Alternative: The Refundable Wind Energy Production Tax Credit*

#### 1. The Practical Case for a Refundable Credit: A Better Targeted Subsidy

A simple change that would lessen – or even eliminate – the need for tax equity investors is to make the production tax credit refundable. Currently, the production tax credit is a nonrefundable credit, which means it can only be used to offset existing tax liability.<sup>288</sup> To the extent a taxpayer has no remaining tax liability, the credit has no further value. As previously discussed, this feature makes the credit unavailable to wind developers that, in the early stages of a wind project, often have insufficient tax liability to absorb the credit.<sup>289</sup> This practical reality drives the need for tax equity investor partners, creating a market where wind farm developers are willing to pay a premium to monetize the production tax credit.

In contrast, refundable credits are not limited by existing tax liability. Rather, refundable credits enable the government to deliver a tax subsidy to eligible taxpayers without regard to tax liability.<sup>290</sup> To the extent that a taxpayer has insufficient tax liability to absorb the credit, any remaining available credit is given to the taxpayer in the form of a tax refund.<sup>291</sup> Making the production tax credit refundable, therefore, would allow wind developers to receive the full value of the credit, even if the developer has no current tax liability.

A refundable version of the production tax credit could also eliminate the need for tax equity investment as a source of financing. As discussed in

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287. See *supra* note 90.

288. See SHERLOCK, *supra* note 14.

289. See *Publication 596, Earned Income Credit (EIC)*, IRS (2015), <http://www.irs.gov/pub/irs-pdf/p596.pdf>.

290. *The Earned Income Tax Credit (EITC)*, IRS, <https://www.irs.com/articles/earned-income-tax-credit-eitc> (last visited Feb. 22, 2016).

291. The most well-known refundable credit is the earned income tax credit, which is available to certain low-income taxpayers who typically have no income tax liability. *Id.* Such taxpayers receive the value of their earned income tax credit through a tax refund when they submit their tax returns. See *Publication 596, Earned Income Credit (EIC)*, *supra* note 290.

Part II.B.1, under current law, the production tax credit has limited use to traditional lenders.<sup>292</sup> Project finance creditors lend against the value of the project assets and its expected cash flow; however, because the project company is a pass-through entity, the credits cannot generate project-level cash flow. Similarly, the wind developer may be unable to convert the credit into cash due to its own low tax liability, and creditors cannot count on the credit to become a valuable source of cash flow. Thus, as a practical matter, the production tax credit cannot be used as collateral by a wind energy developer that is unable to absorb the credit on its own.

Meanwhile, the creditors' status as non-equity holders disqualifies them from using the credits directly.<sup>293</sup> Granted, in the event of default, the creditor would foreclose on the project and become an equity holder. Nevertheless, a bank would not typically hold the project for long before selling the assets in a foreclosure sale, so it is unlikely that the bank would remain eligible to claim the credit. Furthermore, the production tax credit is unattractive collateral because the bank would be unable to separate them from other assets and sell them to third party buyers because such buyers would also fail the equity-holder requirement.<sup>294</sup>

In contrast, a refundable production tax credit would generate real cash flows to all eligible wind energy developers, regardless of their tax profiles because the credit would no longer be limited by the wind developers' tax liability.<sup>295</sup> As such, a creditor may be willing to lend money directly to the

292. See *supra* notes 109–11.

293. I.R.C. § 45(a)(2)(A)(i) (West 2016) (specifying that the credit is earned by “qualified facilities”); *id.* § 45(d)(1) (limiting “qualified facilities” for wind energy facilities to those “owned” by the taxpayer).

294. See Christopher K. Odinet, *Testing the Reach of UCC Article 9: The Question of Tax Credit Collateral in Secured Transactions*, 64 S.C. L. REV. 143, 179–80 (2012) (footnotes omitted) (“[S]ome credits, even though they can be substantively transferred, cannot be procedurally transferred for use as collateral. Specifically, many tax credits can be transferred only through an allocation to the members of the taxpayer. . . . Not just any third party can receive the credits; that party must have an equity interest in the entity that is entitled to the credits, and the transfer must come through the allocation of tax benefits to the members. In such a case, the credits are substantively transferable, but there would be no way to procedurally allow the credits to be seized by a creditor in the event of a default.”).

295. CONG. BUDGET OFFICE, REFUNDABLE TAX CREDITS 1 (Jan. 2013), [https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/43767\\_RefundableTaxCredits\\_2012\\_0\\_0.pdf](https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/43767_RefundableTaxCredits_2012_0_0.pdf) (“Whereas other preferences reduce the amount of taxes owed to the government, refundable credits can result in net payments from the government. Specifically, if the amount of a refundable tax credit exceeds a filer’s tax liability before that credit is applied, the government pays the excess to that person or business.”). Like the current production tax credit, a refundable version of the credit would continue to be unavailable for use as collateral at the Project Company level unless the ownership restriction were also lifted; however, a developer could nevertheless choose to add additional leverage at the holding company level by borrowing against the credit.

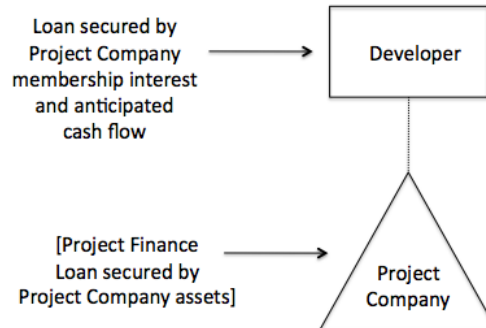
wind developer, secured by the anticipated cash flow from the production tax credit.<sup>296</sup> In other words, because the refundable tax credit would be expected to generate cash flow to the developer, a lender may be willing to extend credit directly to the wind developer that is secured by that anticipated cash flow. Alternatively, a lender may be willing to extend more credit at the Project Company level if the developer guarantees to make certain future contributions to the Project Company using cash earned from the credit.<sup>297</sup> Figure C below shows the different levels of financing.

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296. See Odinet, *supra* note 294, at 149 (explaining that tax credits are “all the rage” in secured transactions). The behavior of borrowers and lenders during the years when the § 1603 “cash grant” was available supports the prediction that at least some creditors may be willing to lend against expected cash flow from a renewable energy tax credit. Following the 2008 financial crisis, tax equity investment was largely unavailable because so few would-be tax equity investors had sufficient tax liability to absorb the tax credits. Warren Lilien et al., *Bridges to US Cash Grants*, LATHAM & WATKINS 1 (2011), <https://www.lw.com/thoughtLeadership/bridges-to-us-grants-for-renewable-energy-pf>. Congress enacted a temporary “cash grant” option under which wind energy producers could elect to receive direct cash outlays from the government in lieu of the tax credits. *Id.* During that period, there was a market for “cash grant bridge loans,” which were loans secured by the anticipated cash flow from the cash grant. *Id.* (“[M]any developers have turned to short or medium-term financing from commercial lenders to fund the construction of renewable energy projects expected to qualify under grant criteria, opening up a substantial market for cash grant bridge loans. These loans are typically secured by, and anticipated to be paid with the proceeds of, expected cash grants.”). Lenders are often willing to accept tax credits as collateral for loans. See Odinet, *supra* note 294, at 149 (“More and more lenders want a security interest in actual tax credits as a way to secure the loan.”). If a lender were to foreclose on the project in the event of default, it may satisfy the ownership requirement and would be able to use the credit directly; however, the ownership restriction would still prevent the lender from selling the credits to non-owner third parties.

297. Under current law, project finance lenders are sometimes willing to extend capital on this basis, but the covenant must be between the lender and the tax equity investor. See Bolinger et al., *supra* note 92, at 10–11 (“[L]enders typically require that the Tax Investor provide a contingent guarantee to make periodic additional equity investments into the project company on an as-needed basis. The amount of such injections for any period is capped at the amount of PTCs actually generated in that period . . . . Such injections essentially create a second contingent cash flow stream that lenders are willing to rely upon to support an incremental PTC loan.”). Since tax equity investors are not usually willing to enter into such an agreement with lenders, this option is rarely available. *Id.* at 11 (“[T]he inclusion of a PTC tranche of debt limits the pool of potentially interested Tax Investors still further, because few Tax Investors have been willing to assume the contingent obligation surrounding future capital contributions.”).

FIGURE C



Amending the tax code to provide for a refundable production tax credit, therefore, would end the need for tax equity investors to raise capital. Instead, developers could retain equity ownership of wind projects and supplement their equity contributions with debt financing as needed. Though the developer who incorporates borrowing would continue to incur transaction costs and would be required to pay interest on the debt, debt financing has advantages over the tax equity investment structure. First, any interest expenses would be tax deductible, potentially making the cost of capital lower for debt than for equity.<sup>298</sup> This means that, even though both tax equity investors and creditors would demand a return on their investment, the developer may be able to retain more of the credit's value under the debt scenario due to the corporate interest deduction.<sup>299</sup> Second, debt financing allows the developer to leverage its equity investments to increase its rate of return.<sup>300</sup> This possibility is not entirely unavailable under current law; however, tax equity investors often object to the involvement of outside lenders.<sup>301</sup> When no tax equity investor is involved, the developer should have a greater flexibility to incorporate debt financing as needed.

A refundable production tax credit, therefore, would be more effective than the existing credit both for the purpose of increasing the rate of return on wind projects and for enabling developers to attract necessary financing for new wind projects. By more carefully targeting the subsidy toward wind projects, the refundable production tax credit would more effectively incentivize the development needed to encourage wind energy production and, ultimately, the displacement of greenhouse gas producing energy sources.

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298. *Id.* at 32.

299. *Id.*

300. *Id.* at 43.

301. *Id.* at 10 (“The use of debt on a project can, however, limit the pool of Tax Investors that are willing to invest. Some Tax Investors do not want to have to contend with a lender in case a project encounters financial stress. . . . Due largely to the Tax Investor concerns described above, levered structures (i.e., those with debt at the *project* level) have been in the minority for financing wind projects in the U.S.”).

## 2. The Theoretical Case for a Refundable Credit: A More Simple, Efficient, and Equitable Subsidy

Furthermore, a refundable production tax credit would not only constitute a better-targeted, more effective subsidy, but it would also be consistent with good tax policy. Three important policy goals of taxation are simplicity, efficiency, and equity.<sup>302</sup> A refundable tax credit is consistent with the first of these goals since reducing the prevalence of complex tax equity investment transactions would greatly simplify the application of the production tax credit. The other two policy goals merit a lengthier discussion.

Batchelder, Goldgerg, and Orszag have analyzed refundable tax credits on efficiency grounds in the context of the individual income tax. In that context, they concluded that “the optimal tax incentive generally should apply uniformly across the income distribution unless there is evidence that marginal externalities generated by the subsidy or marginal responsiveness to the subsidy vary by income class.”<sup>303</sup>

To reach this conclusion, they first consider the impact of nonrefundability on externalities and elasticity, the two factors that help identify a well-targeted subsidy.<sup>304</sup> They observed that “[i]t is extremely unlikely that externalities and elasticities change in an abrupt and discontinuous fashion exactly at the point of zero income tax liability or the marginal tax rate thresholds.”<sup>305</sup> It is similarly unlikely that insufficient tax liability to absorb the production tax credit correlates with wind energy producers that generate fewer positive externalities via carbon offsets or that respond less readily to the subsidy.

Small wind energy producers may be less likely to have significant tax liability than their larger counterparts; however, there is no reason to assume that the wind energy produced by small wind farms produces less carbon offset, kilowatt-for-kilowatt, relative to larger wind energy producers.<sup>306</sup> Rather, the amount of carbon offset will vary based on location and the type of traditional energy displaced by wind energy. A megawatt of wind energy generated by a small wind farm owned by a low tax-liability developer in one

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302. Reuven S. Avi-Yonah, *The Three Goals of Taxation*, 60 TAX. L. REV. 1, 1 (2006) [hereinafter Avi-Yonah, *Three Goals*].

303. Batchelder et al., *supra* note 259, at 46–47.

304. *Id.* at 28.

305. *Id.*

306. Since all wind energy producers earn the production tax credit at the same rate, based on the number of kilowatts of energy produced, it makes sense to consider the relative externalities produced based on a kilowatt-versus-kilowatt comparison, as opposed to a project versus project comparison. See *Production Tax Credit For Renewable Energy*, *supra* note 182.

306. See Kathryn Sarkis, *How Carbon Projects Can Bring Story to Your Sustainability Program*, TRIPLEPUNDIT (Oct. 9, 2014), <http://www.triplepundit.com/special/guide-to-carbon-offsetting/projects-can-bring-story-carbon-offsets/>.



location may produce more positive externalities than a megawatt of wind energy generated by a second, larger developer with greater tax liability.

Furthermore, if large energy producers appear to respond more readily to the production tax credit, this is likely because the cost of monetizing the production tax credit presents a barrier to smaller wind energy developers. A refundable production tax credit should be equally – if not more – attractive to small wind developers with little tax liability as it is to larger developers. In short, the taxable income of wind energy developers likely has little or no impact on their ability to generate positive externalities or their likelihood to respond to the credit, so there is no good tax policy reason for subsidizing wind energy developers differently based on their taxable income.

Batchelder, Goldberg, and Orszag further argue that uniform subsidies like refundable tax credits are most economically efficient absent evidence of how externalities and elasticities vary because “under the most reasonable set of default assumptions, they minimize the expected deadweight loss generated by errors in the incentive’s application.”<sup>307</sup> Using a traditional economic analysis, the authors demonstrate that when a distribution of externalities is unknown – for example across income cohorts (e.g., potential recipients of a subsidy may generate different levels of a positive externality) – a uniform subsidy like a refundable tax credit minimizes deadweight loss due to uncorrected externalities caused by subsidy shortfalls.<sup>308</sup>

Under these principles, it is reasonable to conclude that a refundable credit that delivers a uniform subsidy to wind energy producers would be more efficient than its nonrefundable counterpart because the distribution of externalities in this context is unknown. As discussed in Part II.A.2, the amount of carbon offset by wind farms will vary based on a number of factors, including location and the characteristics of the traditional energy displaced by wind energy.<sup>309</sup> One could argue that the subsidy should be higher in regions where it will be more effective; however, given the variety of factors that affect the amount of carbon offset, predicting the locations where the subsidy will be most effective would be difficult. Meanwhile, there is no indication that the income-level of a wind energy producer has any effect on carbon offset. A uniform subsidy that minimizes deadweight loss across the group would therefore be preferable over a subsidy given to some wind energy producers but not others based on taxable income.<sup>310</sup>

In its nonrefundable form, the production tax credit is uniform on its face, but as a practical matter, it does not deliver a uniform subsidy because wind energy producers that earn the same size of credit through wind energy

307. Batchelder et al., *supra* note 259, at 47. Deadweight loss, in the context of subsidies, refers to uncorrected externalities. *See id.*

308. *Id.* *But see* David M. Schizer, *Limiting Tax Expenditures*, 68 TAX L. REV. 275, 347–48 (2015) (arguing that the analysis set forth by Batchelder, Goldberg, and Orszag “no longer holds when we have *at least some* sense of which income cohort should be funded”).

309. *See supra* notes 75–77 and accompanying text.

310. Batchelder et al., *supra* note 259, at 47–48.

production may nevertheless receive varying amounts of the subsidy depending on their tax liability. In other words, even if wind energy producers could earn the subsidy at the same rate, they would not all receive the full subsidy earned because their ability to absorb the subsidy varies. Furthermore, the above analysis demonstrated that tax equity investment transactions used to monetize the nonrefundable credit also prevent the full subsidy from reaching the wind energy producers. Thus, the production tax credit is not uniform but, rather, is dependent on the tax liability of the taxpayer.

The production tax credit could be transformed into a uniform subsidy, however, by making the credit refundable. The absolute size of the subsidy will continue to vary as wind farms produce varying amounts of the wind energy, but each wind energy producer would nevertheless earn the same amount of credit based on the amount of wind energy earned, kilowatt-for-kilowatt. This would be true regardless of the tax liability of the taxpayer. Making the production tax credit refundable would improve the credit to deliver a uniform, more efficient subsidy.

A refundable subsidy may also be more equitable than the nonrefundable version. The equity goal of tax law is traditionally evaluated in terms of horizontal equity and vertical equity.<sup>311</sup> Horizontal equity is the principal that like taxpayers should be taxed similarly, whereas vertical equity holds that relative tax burdens should be based on taxpayers' ability to pay.<sup>312</sup> At the entity level, a refundable credit would be more equitable than a nonrefundable credit. First, horizontal equity would increase because all like wind energy companies would have access to the tax benefit, regardless of their level of taxable income. Second, vertical equity would increase because the tax benefit would no longer be disproportionately available to taxpayers with greater tax liability, which are often the largest, most profitable companies. That said, empirical research would be needed to assess the broader distributional effects of this proposal, because the ultimate tax incidence of the production tax credit is not necessarily known.<sup>313</sup>

### 3. Responding to Potential Objections to a Refundable Credit

Potential objections to a refundable production tax credit include: opposition to use of the tax system to deliver subsidies; the need to limit the size of the credit in order to avoid wasteful spending; the possibility of taxpayer abuses; and to a lesser degree, resistance to wealth distribution via the tax system and commitment to the civic duty of all citizens to pay some income tax.

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311. Michael J. Graetz, *Legal Transitions: The Case of Retroactivity in Income Tax Revision*, 126 U. PA. L. REV. 47, 73 (1977).

312. *Id.* at 79–83.

313. *See infra* note 351 and accompanying text.

The first objection to a refundable production tax credit – that the tax system should not be used to deliver subsidies and that the administration of the credit would offset any efficiency gains – is a philosophical argument about the purpose of the income tax. This view reflects the perspective of Stanley Surrey that taxation should be used strictly for revenue-raising purposes and any other use of the tax system is bad tax policy.<sup>314</sup> Surrey coined the term “tax expenditures” to describe subsidies delivered through the tax system.<sup>315</sup> Tax incentives like the production tax credit would generally fall within the scope of Surrey’s tax expenditures because the credit does not raise revenue, but instead delivers a subsidy intended to alter taxpayer behavior.<sup>316</sup>

Many experts have accepted Surrey’s premise that taxation should not be used to further regulatory goals, but some tax experts recently have argued that tax incentives are appropriate in some contexts.<sup>317</sup> University of Southern California Law School tax professor Edward Kleinbard has stated that when government intervention is warranted, then the choice between direct regulation or tax-based tools depends on which is easier to administer, which is most fair, and which is best targeted to solving the problems without unnecessary additional burdens.<sup>318</sup> Similarly, University of Michigan Law School tax professor Reuven Avi-Yonah has argued that it is not only acceptable to regulate via the tax system, but it may even be preferable when alternatives would be less effective or more difficult to administer.<sup>319</sup>

In the context of combating climate change, observers generally have agreed that tax incentives and disincentives are more effective and easy to administer than non-tax alternatives, and history has shown that the production tax credit has been one of the most politically viable tax-based options.<sup>320</sup> Direct regulation in this context “has generally been rejected because of a wide consensus that the government does not have the necessary information to ensure that [greenhouse gas] emissions targets are distributed most effec-

314. See STANLEY S. SURREY, *PATHWAYS TO TAX REFORM: THE CONCEPT OF TAX EXPENDITURES* 6 (1973). See also Avi-Yonah, *Taxation as Regulation*, *supra* note 18, at 3.

315. SURREY, *supra* note 314. The boundaries of the tax expenditure concept have been controversial, however, since tax expenditures are defined relative to a baseline that critics say is hard to define. See also Avi-Yonah, *Taxation as Regulation*, *supra* note 18, at 3.

316. See Mann, *supra* note 41, at 136 (“Tax expenditures, also called tax incentives, are economic instruments that operate to change the cost of a particular activity by reducing the tax burden on taxpayers engaging in the favored activity. Thus, renewable energy tax incentives operate by reducing the cost of generating electricity using renewable sources.”).

317. Avi-Yonah, *Taxation as Regulation*, *supra* note 18, at 3.

318. KLEINBARD, *supra* note 51, at 8.

319. Avi-Yonah, *Taxation as Regulation*, *supra* note 18, at 4.

320. See Mann, *supra* note 41, at 14.

tively among private market actors.”<sup>321</sup> The main other non-tax tool to regulate climate-change has been some version of cap and trade programs. While potentially more effective than the production tax credit, cap and trade programs tend to be dismissed by tax experts as too costly to administer and too difficult to enforce.<sup>322</sup>

In contrast, taxes and transfers through the tax system can be enforced by IRS staff, who already have mechanisms for enforcement in place, without the need to form new administrative agencies. The carbon tax, a classic Pigouvian tax placed directly on greenhouse gas emissions, probably would be more effective and just as easy to administer as the production tax credit, but it tends to be politically unacceptable.<sup>323</sup> The production tax credit faces political hurdles as well, as evidenced by its repeated sunsets.<sup>324</sup> Historically, however, it has been more politically acceptable than the carbon tax, and it is likely to continue to be the most politically acceptable option in the future.<sup>325</sup> Subsidizing wind energy through tax credits is not necessarily bad tax policy, therefore, because it may be the most effective, most easily administered tool for promoting clean energy production that is also reasonably politically viable.

Nevertheless, many politicians and academics propose scaling back tax expenditures to help cut the deficit,<sup>326</sup> and few knowingly would argue in favor of wasteful subsidies. For this reason, a second objection to the refundable production tax credit is that it would remove the built-in limit on the size of the credit. Refundable tax credits can and often do have limits, however.<sup>327</sup> A well-designed refundable production tax credit could incorporate limits that are reasonably related to the ways the production tax credit – refundable or not – is most likely to result in waste.

The first possibility for wastefulness is if the credit subsidizes wind energy production that would occur anyway.<sup>328</sup> To the extent that the government subsidizes activity that would have occurred without the credit, a subsi-

321. Avi-Yonah, *Taxation as Regulation*, *supra* note 18, at 4.

322. *See id.* at 5.

323. *See* Mann, *supra* note 41, at 141 (footnote omitted) (“Imposing consumption taxes, such as a carbon tax, on environmentally damaging goods would more efficiently encourage alternatives to fossil fuel use. However, the United States has not embraced the idea of pollution taxes, preferring instead the path of least legislative resistance: tax incentives.”).

324. *See* Brad Plumer, *From NASCAR to Wind Power: Congress Just Let 55 Tax Breaks Expire*, WASH. POST (Jan. 2, 2014), <https://www.washingtonpost.com/news/wonk/wp/2014/01/02/from-nascar-to-wind-power-congress-just-let-55-tax-breaks-expire/>.

325. Cullen, *supra* note 39, at 129.

326. Schizer, *supra* note 308, at 285.

327. *See generally* CONG. BUDGET OFF., REFUNDABLE TAX CREDITS 6 (2013), [https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/43767\\_RefundableTaxCredits\\_2012\\_0\\_0.pdf](https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/43767_RefundableTaxCredits_2012_0_0.pdf).

328. Schizer, *supra* note 308, at 295.

dy is wasteful.<sup>329</sup> One way to address this problem would be to tie the subsidy partly to the profitability of the wind companies. The subsidy could be made available until the company becomes independently profitable, at which point the credit could be phased out or even subject to recapture.<sup>330</sup> When a credit is subject to recapture provisions, a taxpayer may be required to pay back money received through tax credits in previous years.

The second possibility for waste is if wind energy companies are subsidized for producing energy beyond what is needed to meet demand. The production tax credit may over-incentivize wind energy production during periods of low demand.<sup>331</sup> A particularly striking example of this was seen in September 2015 when wholesale energy prices in Texas reached negative \$8.52.<sup>332</sup> The reason for the unusually low wholesale prices was that wind energy producers had paid to place their energy on the power grid during a time of extremely low demand.<sup>333</sup> They were able to afford, and even profit, from the deal because they expected to receive federal production tax credit money as a result of “selling” the energy.<sup>334</sup>

This problem has nothing to do with whether the credit is refundable, and it has everything to do with the fact that the credit incentivizes a proxy. Columbia University Law Professor David M. Schizer has suggested tying the subsidy more closely to the desired activity, which is the replacement of greenhouse gas producing energy.<sup>335</sup> Alternatively, Schizer would recommend adding a requirement that electricity would not be eligible for tax credits unless it sells for a minimum price.<sup>336</sup> A refundable production tax credit should similarly include some feature that eliminates or phases out the subsidy as demand declines.

A third objection to the refundable production tax credit is that refundable tax credits are subject to taxpayer fraud and abuse.<sup>337</sup> This has been particularly true with respect to the earned income tax credit, which is a large refundable tax credit program intended to subsidize low income earners.<sup>338</sup> Erroneous payments based on refundable tax credits can be particularly frustrating to correct since the IRS must endeavor to cause taxpayers to repay

329. See Edward A. Zelinsky, *Efficiency and Income Taxes: The Rehabilitation of Tax Incentives*, 64 TEX. L. REV. 973, 992–93 (1986).

330. See *id.*

331. See *infra* note 354 and accompanying text.

332. See Daniel Gross, *The Night They Drove the Price of Electricity Down*, SLATE (Sept. 18, 2015), [http://www.slate.com/articles/business/the\\_juice/2015/09/texas\\_electricity\\_goes\\_negative\\_wind\\_power\\_was\\_so\\_plentiful\\_one\\_night\\_that.html](http://www.slate.com/articles/business/the_juice/2015/09/texas_electricity_goes_negative_wind_power_was_so_plentiful_one_night_that.html).

333. *Id.*

334. *Id.*

335. See Schizer, *supra* note 36, at 37. See also *supra* Part II.A.

336. Schizer, *supra* note 36, at 37.

337. See *Fraud*, IRS, <https://www.etc.irs.gov/Tax-Preparer-Toolkit/faqs/fraud> (last visited Feb. 22, 2016) (estimating that between twenty-one and twenty-six percent of EITC claims are paid in error).

338. *Id.*

money paid to them. In light of these problems, it could be argued that tax equity investors act as gatekeepers who monitor the taxpayers' behavior to ensure their investment remains sound. The notion that tax equity investors are policing the tax activities of wind companies is probably overly optimistic, however, and it distracts from larger administrative issues related to the credit.

The Government Accountability Office observed that the IRS is not required to collect project-level data from all the taxpayers it supports with the production tax credit.<sup>339</sup> In fact, the IRS merely requires taxpayers to report the total amount of the credit they are claiming for eligible wind projects, and as a result, the IRS has very little information about individual projects, and there is no way to confirm how much generating capacity the credit is supporting.<sup>340</sup> It should be emphasized that these challenges to enforcement are present under current law and are not related to questions of refundability.

Rather than relying – somewhat dubiously – on tax equity investors to enforce the tax law, the IRS should require documented proof that projects are both eligible for the credit and have completed the requisite energy sales. Given the high dollar amounts at stake, it would be reasonable to impose recordkeeping requirements on wind companies, and some states already have similar requirements under state tax law. Utah, for example, requires companies to provide documentation to certify that a project is eligible for the state law version of the production tax credit, and it requires them to submit copies of energy sale invoices when they claim the credit.<sup>341</sup> The IRS should impose similar requirements and should regularly audit wind projects in order to discourage abuses of the production tax credit, regardless of whether the credit is made refundable.

The fourth objection criticizes the government's redistribution of wealth through a combination of taxation and spending.<sup>342</sup> Tax experts differ in their views about the appropriate level of redistribution of wealth via the tax system.<sup>343</sup> Some object to any tax and spending program that collects money from one group and redistributes it to another, less well-off group of taxpayers.<sup>344</sup> This objection is amplified in the context of refundable tax credits in the individual income tax context because refundable credits allow some taxpayers who are too poor to owe taxes to instead collect money from the government.<sup>345</sup>

In the context of the production tax credit, however, the distribution question is complicated by the fact that a refundable tax credit claimed by a

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339. GOV'T ACCOUNTABILITY OFFICE, *ELECTRICITY GENERATION PROJECTS: ADDITIONAL DATA COULD IMPROVE UNDERSTANDING OF THE EFFECTIVENESS OF TAX EXPENDITURES* 27 (Apr. 2015), <http://www.gao.gov/assets/670/669881.pdf>.

340. *Id.*

341. *See* UTAH ADMIN. CODE r. 362-2 (2015).

342. Avi-Yonah, *Three Goals*, *supra* note 302, at 3.

343. *See* KAPLOW, *supra* note 53.

344. Avi-Yonah, *Taxation as Regulation*, *supra* note 18, at 2.

345. *See* CONG. BUDGET OFF., *supra* note 327, at 3.

“poor” wind energy company is an economic benefit that ultimately may be enjoyed by the company’s relatively wealthy shareholders.<sup>346</sup> For this reason, one may be tempted to object to a refundable production tax credit for wind energy producers on the basis that the wealthy shareholders of wind energy companies should not be the ultimate recipients of redistributed wealth.<sup>347</sup> This objection may have some merit if it can be conclusively shown that the benefits and burdens of a corporate income tax inure to wealthy corporate shareholders.<sup>348</sup>

However, redistribution-based objections are less applicable in the context of business taxation because any broader distributive goals can be addressed through the individual income tax system.<sup>349</sup> Avi-Yonah has argued that each form of taxation should be used to advance one primary goal.<sup>350</sup> In his view, the individual income tax should be used to redistribute wealth, while corporate taxation should serve a regulatory purpose.<sup>351</sup> For example, a carbon tax may be used to discourage businesses from emitting harmful greenhouse gases, while a subsidy like the production tax credit serves to encourage companies to invest in renewable energy like wind.<sup>352</sup> In either case, the corporate tax or subsidy would properly function to regulate corporate behavior through taxation and tax incentives.<sup>353</sup> The refundable design should be preferred without regard to its distributional effect because a refundable production tax credit would more effectively advance its regulatory goals; the burden of achieving wealth distribution goals should be left to the

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346. The issue of the tax incidence of corporate taxation is one of the classic theoretical questions debated by lawyers and economists. See William A. Klein, *The Incidence of the Corporation Income Tax: A Lawyer’s View of a Problem in Economics*, 1965 WIS. L. REV. 576, 576 (1965) (“[A]nyone concerned with the wisdom of the corporation income tax must ask himself which *individual* are richer and which are poorer by virtue of the imposition of the tax. Does the tax result in lower profits for shareholders, higher prices for consumers, lower wages for workers, lower salaries for executives, or lower prices paid to suppliers, or some combination of these? In the language of economics, what is the tax’s ‘incidence’?”).

347. See *id.* at 277.

348. See Kimberly A. Clausing, *The Future of the Corporate Tax*, 66 TAX L. REV. 419, 430 (2013) (“While it remains possible that labor bears some of the corporate tax burden, and the relationship is not just discernible using aggregate data, there are also several reasons why capital may continue to bear the corporate tax burden.”).

349. Additionally, note that distributive arguments are largely irrelevant in the context of an economic efficiency analysis, which seeks to maximize the total dollar amount without regard to who receives those dollars. See Klein, *supra* note 346, at 277 (“One concerned with economic growth is most likely to ask questions bearing on how the tax affects returns to capital.”).

350. Avi-Yonah, *Taxation as Regulation*, *supra* note 18, at 3.

351. *Id.* at 7.

352. *Id.* at 4.

353. *Id.* at 7.

individual income tax system, which is presumably better suited to achieve redistribution.<sup>354</sup>

A fifth potential objection that “all Americans have a civic duty to pay at least some income tax . . . so that they feel some stake in governmental decisions” is better applied in the context of the individual income tax and is largely inapplicable here.<sup>355</sup> Though many members of the public are undoubtedly frustrated by stories of large corporate taxpayers that escape significant tax liability through aggressive tax planning strategies, it would be a mistake to confuse corporate taxpayers’ legal obligations under the tax code with civic duties associated with personhood. Although corporations and other business entities play a significant role in lobbying and enjoy First Amendment protection with respect to political speech,<sup>356</sup> business associations are not voting citizens, so the underlying rationale to this objection is inapplicable. Furthermore, a negative tax at the company level does not imply that the natural persons who bear the ultimate burden of the business tax are paying no taxes.<sup>357</sup> This objection to the refundable production tax credit, therefore, largely can be disregarded.

Apart from the potential objections described above, the production tax credit faces strong political forces that undoubtedly work against the adoption of a refundable version of the production tax credit. The recent sunset phase of the production tax credit reflects Congressional resistance to government spending programs and reluctance among conservative politicians to promote investment in clean energy over traditional forms of energy.<sup>358</sup> Moreover, the fact that the production tax credit has not been refundable despite clear problems with the nonrefundable version of the credit likely reflects political controversy around the credit generally, combined with broader resistance to refundable credits.<sup>359</sup> Nevertheless, the proposal has powerful supporters, and versions of the refundable production tax credit continue to appear in the Obama Administration’s revenue proposals.<sup>360</sup> A refundable production tax

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354. *Id.*

355. Batchelder et al., *supra* note 259, at 66.

356. *See* Citizen’s United v. FEC, 558 U.S. 310, 343 (2009) (“The Court has thus rejected the argument that political speech of corporations or other associations should be treated differently under the First Amendment simply because such associations are not ‘natural persons.’”).

357. *See* Klein, *supra* note 346, at 262 (referring to the fact that individuals, not companies, ultimately bear the burden of taxation).

358. *See supra* notes 28–29 and accompanying text.

359. Interestingly, a predecessor of the current investment tax credit was enacted in 1978 as a refundable credit, but the Crude Oil Windfalls Profits Tax Act of 1980 repealed this feature of the credit two years later without explanation. Thomas W. Giegerich, *The Monetization of Business Tax Credits*, 12 FLA. TAX REV. 709, 726–27 (2012).

360. DEP’T OF TREASURY, GENERAL EXPLANATIONS OF THE ADMINISTRATION’S FISCAL YEAR 2016 REVENUE PROPOSALS 53–55 (Feb. 2015), <http://www.treasury.gov/resource-center/tax-policy/Documents/General-Explanations-FY2016.pdf>.



credit would constitute a more effective tax credit and, more broadly, better tax policy.

## V. CONCLUSION

The production tax credit has delivered sizeable subsidies to the wind industry since its introduction in 1992. Opponents to the production tax credit argue that the credit is no longer needed, that it distorts competition in the energy market, and that lawmakers should allow the credit to expire permanently. In the absence of an alternative policy solution to address market failure caused by greenhouse gas emissions by fossil fuel companies, however, this would be a mistake. This Article argues that the production tax credit should be amended to make it a refundable tax credit.

Renewable energy producers face significant disadvantages relative to traditional energy industries due to longstanding regulation and policies favoring fossil fuels. Even when such structural disadvantages are ignored, however, renewable energy companies are rendered unable to fully compete with traditional energy producers due to market failure in the energy industry. Traditional energy production is associated with negative externalities in the form of greenhouse gases that not only make fossil fuel prices artificially low relative to renewable energy sources like wind energy, but also inflict serious harms on society by contributing to climate change.

The production tax credit is a tax incentive that can be used to mitigate the economic and environmental harms caused by greenhouse gas emissions in the energy industry. Future research should examine whether the production tax credit successfully incentivizes the renewable energy technology most likely to effectively combat climate change. This Article focuses specifically on wind energy. In this context, this Article shows that, under current law, features of the production tax credit limit its efficacy. Specifically, the nonrefundable nature of the credit limits wind developers' ability to use the credit in the absence of complex tax equity financing structures designed to monetize the credit. Use of tax equity financing by the wind energy industry introduces significant transaction costs that drive money away from wind projects. Tax equity transactions also shift some of the subsidy's value toward a small number of large, cash-rich investment banks and corporations whose participation in the deals is motivated primarily by the opportunity to reduce taxes owed from unrelated activities.

As a result, the production tax credit in practice is a poorly targeted subsidy that is not as effective as it could be if it were refundable. Furthermore, a refundable tax credit would better advance efficiency goals of taxation because uniform refundable credits generally are more efficient than nonrefundable credits in cases when variations in the amount of positive externalities are hard to predict. Because the level of positive externalities produced by any given wind farm depend upon a number of factors that are difficult to anticipate, including the amount and type of traditional energy displaced, a

2016]

*IMPROVING TAX INCENTIVES*

517

uniform refundable credit to wind energy producers is probably the most efficient design.

For these reasons, the production tax credit should be amended to make the credit refundable. A refundable production tax credit could reduce, or even eliminate, the need for tax equity financing, thereby rendering the credit more effective and better able to promote market efficiency and fight climate change.



